ABSTRACT

MINDFULNESS MEDITATION IN FIRST-YEAR COMPOSITION:
EFFECTS ON ATTENTION, METACOGNITION, AND APPREHENSION

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Amid ever-growing interest in cognition and learning and demands for pedagogy that channels the attention of increasingly distracted and disengaged learners, this thesis explored the effects of a mindfulness meditation practice on students' attentional control, metacognition, and writing apprehension. Students practiced the instructor-led meditation as a class for five minutes each class session, completing periodic surveys about their experiences and writing weekly timed essays. The repeated mindfulness practice allowed students to become familiar with their mental habits and challenged students to work through mental frustrations as they arose. The weekly writing session following the mindfulness practice allowed them to both reflect on and continue the practice while facing common academic-writing-related pressures. This study reveals a strong association between the brief but frequent mindfulness practice and students' attentional control, insight, and apprehension and offers suggestions for implementation as well as future research.

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MINDFULNESS MEDITATION IN FIRST-YEAR COMPOSITION: EFFECTS ON ATTENTION, METACOGNITION, AND APPREHENSION

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INTRODUCTION

In the classroom, the effects of new demands on college students are often revealed as instructors wrestle with students' disengagement, apathy, and apprehension in addition to lackluster writing skills. Contrary to instructors' hopes, students submit pieces of writing that, despite their best efforts, are unclear, unoriginal, illogical, underdeveloped, unorganized, and/or incoherent. Some students simply dislike writing, so they do only what they need to get by, failing to internalize content and instruction by becoming deeply engaged with it. Many who truly want to improve lack the ability to understand or apply feedback holistically, skillfully talking themselves through a composition throughout the writing process. For many reasons, they fail to compose text that demonstrates critical thinking and articulate writing.

A movement investigating the intersection of cognition and writing began three and a half decades ago by researchers including Flower and Hayes (1981). In the 40 years that followed, research has moved away from writing as science and as an independent act, focusing instead on defining and facilitating strategy-building throughout the writing process and, more recently, cultivating awareness of genre. In this rapidly advancing technological era, literacy has become *literacies*, and theorists and educators have become sensitive to the many ways in which we use written communication, defining and teaching writing as a social practice within specific contexts. These traditions, cognitive and sociocultural, need not be polarized, as research that suits both perspectives seems possible and, as Magnifico (2010) argues, desirable.

One means of bridging this divide may be the study of writing and mindfulness meditation, which has been shown to realize changes in cognition and metacognition, and which historically has been associated with the development of context sensitivity and compassion. This study is an endeavor to explore that possibility. Drawing from published research showing a strong correlation between meditation and anxiety, meditation and attention, and meditation and cognition, I speculated that mindfulness pedagogy may yield the following benefits:

1. As students learn how to settle their minds, they will experience less apprehension about writing tasks.
2. This reduced apprehension, resulting in part from a reduction in discursive thought, will enable students to become more focused on the task at hand and become more aware of their writing practices and mental habits while writing.
3. Students will, in turn, more effectively self-regulate their thoughts while planning to write and while writing. Students will demonstrate this increased awareness and self-regulation to some degree in their academic writing assignments, but mainly through their reflective writing about the meditation experience and through interviews with me.
4. The decrease in apprehension and increase in awareness and self-regulation will strengthen students' confidence in writing, creating a more engaged community of writers in the classroom. Students will demonstrate their engagement through body language while writing (observed and described as part of the study) and through more robust, meaningful compositions.

5. Increased awareness of self and others will deepen students' sensitivity to textual nuances, audience/writer relationships, and rhetorical complexity.

In order to investigate these speculations, I established the following objectives:

- Train students, most of whom will be novices, in practicing mindfulness meditation.
- Gather data about students' experiences with writing apprehension, their perceptions of our in-class meditation practice, and its effects, if any.
- Analyze students' writing for demonstrable effects of the mindfulness practice.

The fulfillment of these objectives allowed me to examine possible connections that could provide instructors with a simple means of cultivating student engagement and writing efficacy that could, in turn, beget a dynamic classroom and accompany students through their college careers and beyond.

REVIEW OF LITERATURE

Widely varying in connotation, *meditation* is both a practice and a state of being; of particular relevance to this study is the practice. The late Walpola Rahula, former Professor of History and Literature of Religions at Northwestern University, loosely defines meditation as "a very poor substitute for the original term *bhāvanā,* which means 'culture' or 'development', i.e., mental culture or mental development" (1959, p. 68). The types of practice facilitating this mental development range from visualization to concentration to non-judgmental, receptive awareness, and this range of types comprises many methods. Common to all meditation practices, however, is the intention of training the mind to become unaffected by sensory stimuli. Both of the latter two types—concentrative and receptive—can be considered types of *mindfulness meditation,* in which the practitioner "cultivates moment-to-moment awareness of the self and environment" (Wallace, 2006). In a synthesis of definitions, Chiesa, Calati, and Serretti (2011) explain that mindfulness "is supposed to reveal what is occurring, before or beyond conceptual and emotional classifications about what is or has taken place" (p. 450). That is, practitioners endeavor to accurately perceive whatever they are attending to, without mental or emotional distortion or magnification.

The two types of mindfulness meditation differ in the ways the attention is directed: whereas concentrative techniques entail noticing wandering thoughts and "bringing attention back to a specific object of concentrative awareness," receptive techniques limit the practice to the "observation of the ongoing contents of thought" without the refocusing of attention (Cahn &

Polich, 2006, p. 180). Both practices, however, entail detachment from thought content, as meditators endeavor to avoid getting carried away by a train of thought, immersed in its content. If they do, they are to extract themselves from that thought content by returning their attention either to awareness of the present moment and its attendant sensory stimuli—without responding to those stimuli—or to a chosen focal point, like the breath.

Current Uses of Meditation

Original reasons for disengaging from sensory stimuli were spiritual; Eastern cultures practice meditation to end suffering, attributed solely to distracted thoughts and inaccurate perceptions of reality (as in Mahayana Buddhism) and to experience a non-dualistic state of being (as in Hinduism). Today, though its spiritual value is of prime importance for many, meditation has become popular in secular practice in the West due to its mental and physical health benefits; it has also become the subject of increasing empirical study in a variety of contexts. The prevailing use of meditation in secular contexts is through clinical interventions; Jon Kabat-Zinn, Professor of Medicine Emeritus at the University of Massachusetts Medical School, popularized mindfulness meditation in these contexts by founding mindfulness-based stress reduction (MBSR) and creating the Stress Reduction Clinic and the Center for Mindfulness in Medicine, Health Care, and Society at the university in 1979. As research on the effects of mindfulness meditation—with an emphasis on its ability to foster individuals' self-regulation—has grown significantly over the past decade, the practice has become increasingly common in health care facilities, prisons and behavior-modification centers, and educational institutions.

Benefits Demonstrated by Meditation Studies

To date, much of the research on meditation and its tangible effects has been conducted in the fields of clinical and cognitive psychology, although in recent years neurophysiology researchers have begun more rigorously investigating its effects on neural pathways. The findings are generally consistent, showing beneficial changes in attentional control, cognitive processing, metacognitive processing, anxiety, and physical health (decreased blood pressure, for example; see Larson, Steffen, & Primosch, 2013). Within the neurosciences, meditation has been shown to positively alter brain structure and function.

The bulk of existing studies compares controls of non-meditators to adept meditators with long-term meditation experience. Because the practice has garnered so much interest, particularly from those who can implement it only in brief periods (often due to unrelated limitations on the duration, number, and/or frequency of practice sessions), more studies are investigating the effects of short-term meditation on practitioners (for example, Zeidan, Johnson, Diamond, David, & Goolkasian, 2010; Arch & Craske, 2006; Moore, Gruber, Derose, & Malinowski, 2012; Jha, Krompinger, & Baime, 2007; Tang et al., 2007). The results are similar, though as researchers predicted, the extent of the benefits realized is positively correlated to the amount of practice; however, because "amount" comprises both duration and repetition, this variable requires further research to determine whether duration or repetition is more significant.

Neurophysiological Changes

Studies have found a correlation between meditation practice and brain structure and function, like the relative activation of frontal and pre-frontal areas of the brain that are

"associated with states often described as calm and centered" (Hill, 2006, p. 1724; Cahn & Polich, 2006, p. 200); periods of enhancement of alpha and theta bands akin to that of the first stage of sleep (Corby et al., 1978; Pagano et al., 1976; Rechtschaffen & Kales, 1968; Younger et al., 1975 as cited in Cahn & Polich, 2006); increased "gray matter concentration in brain regions involved in learning and memory processes, emotion regulation, self-referential processing, and perspective taking (Hölzel et al., 2011, p. 36); activity changes in neural pathways that facilitate cognitive control (Larson et al., 2013, p. 1); and changes in the executive network activity, which governs the ability to direct attention (Hasenkamp, Wilson-Mendenhall, Duncan, & Barsalou, 2012). In summary, Green and Turner (2010) explain that "findings from the meditation literature suggest that structural and functional neuroplastic changes underlie the specific behavioural gains associated with meditative practice, and moreover, that there is a dose-response effect (Davidson, 2003; Lutz, Slagter, Dunne, & Davidson, 2008)" (p. 307). The tangible benefits discussed in the following sections, therefore, are attributed to changes in the brain, the extent of which are affected by the extent of meditation practice.

Attentional Control and Cognitive Processing

The greatest portion of the literature on meditation research pertains to the causally connected areas of attentional control and cognitive processing, as "attention is central to many higher order cognitive operations" (Jha et al., 2007, p. 117). Because attention is "susceptible to dysfunction during normal aging and impaired in many disease states (e.g., attention deficit disorder)…, the ability to improve attention with training methods has the potential to be beneficial in many domains," contend Jha et al. (2007, p. 117), explaining the prevalence of research in this area. Collectively, this research (some of which involved undergraduates, as in

the present study) indicates that meditation training "reduc[es] lapses of attention" (Zeidan et al., 2010, p. 7), improves self-regulation (Tang et al., 2007, p. 17154), and "entrains attention in specific and enduring ways" (Jha et al., 2007, p. 117), in turn facilitating the development of deeper cognitive processing skills.

Meditation practice need not be extensive to yield results, however. The research of Zeidan et al. (2010), for example, suggests that practice of twenty minutes per day for four days yields benefits consistent with those of long-term meditation, which indicates that mindfulness meditation can produce immediate, short-term benefits (p. 8). Ortner, Kilner, and Zelazo (2007) reported similar results, saying that in a seven-week mindfulness meditation class (the number of days and hours of instruction were unspecified), "participants in the experimental and control groups initially oriented their attention to…unpleasant stimuli, and this processing interfered with cognitive performance for at least one second, but mindfulness meditation participants then disengaged their attention from these stimuli more rapidly than participants in the other…groups" (p. 280). Moore et al. (2012) also found that 10 minutes of daily practice for 16 weeks improved neural processing in ways that were related to attentional core processes, emphasizing both the connection between attention and cognition and the brevity of interventions that facilitated these beneficial outcomes (p. 12).

The efficiency of the cognitive response has thus become another subject of investigation. In a study comparing data acquired from highly trained and untrained participants, VanLeeuwen, Singer, and Melloni (2012) found that mindfulness meditation, both concentrative and receptive, "facilitates local and global level [information] processing and the ability to rapidly adjust the aperture of attention in response to task demands" (p. 12). Overall, they

explain, “meditators were…much faster [in responding to task demands] than controls…[which] suggest[s] increased speed of processing along with improvements in the distribution of attentional resources in the meditator population” (p. 12). Zeidan et al. (2010) noticed similar results: “Findings of improvements after mindfulness meditation training...also indicated...a greater efficiency in working and long-term memory retrieval in the meditators versus the control group” (p. 7). Additionally, the results of one study (VanLeeuwen et al., 2012) suggest an “increase in neural information processing” which, “presumably reflects more elaborate processing at the functional level (Dehaene et al, 1998)” (p. 13). Not only did meditators demonstrate greater attentional control and more efficient information processing than the control of non-meditators, but they also processed the information more deeply.

Metacognitive Processing

Pertaining to the ability to be aware of and consciously direct one’s own cognitive processes, metacognition is a weighty topic in psychology and education because it has been shown to affect mental health, behavior, and the capacity for learning. Cognitive processes subject to internal control include examples such as “planning the approach to a particular task, monitoring one’s comprehension of material being read or listened to, and evaluating progress toward the completion of…tasks,” explain Shapiro, Brown, and Astin (2011, p. 512). Negretti (2012) connects metacognition to the concept of *agency*, an individual’s capacity to act within a particular environment, as person, behavior, and environment reciprocally influence each other. “Individuals’ ability to exert agency,” Negretti (2012) explains, “presupposes their awareness of what they do and their ability to develop strategies to control and regulate it” (p. 144). The employment of agency—how we act in the midst of factors outside our control—is thus

determined by our metacognitive awareness and abilities. Metacognitive studies, as a result, are applicable to a wide variety of contexts.

Although meditation research has scarcely been extended to include metacognition, a positive relationship between the two is theoretically sound. Because meditation—particularly the mindfulness variety—increases the practitioner's awareness of mental habits through non-judgmental observation and, in concentrative meditation, develops control over those habits, meditation seems fundamentally linked to the development of metacognition (Shapiro et al., 2011). In a meta-analysis of the existing literature, Zeidan et al. (2010) cite Posner and Rothbart (1998), explaining that metacognition is related to the ability to filter out irrelevant information. They also cite the research of Cahn and Polich (2006) and Jha et al. (2007), which indicates that extensive mindfulness meditation training is correlated to two attentional subprocesses, alerting and conflict monitoring. Based on these findings, Zeidan et al. (2010) hypothesize that mindfulness meditation can enhance meta-awareness, one aspect of metacognition. Cahn and Polich (2006) lay the foundation for this hypothesis in their literature review, describing the "metacognitive shift in the relationship between thoughts and feelings" as common to meditative experience, because these mental constructs "come to be observed as arising phenomena instead of occupying full attention (Wallace, 1999; West, 1987)" (p. 181). These theoretical correlations, though supported by the existing literature, require further investigation for validation.

Anxiety Reduction

As meditation is known primarily for its capacity to reduce anxiety, research in meditation and mental health—with the exception of research about neural correlates—generally pre-dates research investigating the cognitive and metacognitive effects of meditation. Such

research indicates that meditation is negatively correlated to the response of the *amygdala*—the part of the brain that receives sensory inputs that it then translates into emotion—to sensory stimuli. Neuroscience research shows that emotional intensity increases with amygdala stimulation. Because meditation trains the mind to disengage from sensory stimuli, meditation practice is negatively correlated to anxiety; research shows that meditation inhibits the amygdala structure (Taren, Creswell, & Gianaros, 2013) and response (Desbordes et al., 2012; Lutz et al., 2013) and that dispositional mindfulness is positively correlated to emotional regulation (McLaughlin, 2010).

These neurophysiological findings support the research of Tang et al. (2007), which found that cortisol levels of meditating participants were lower than those of the control group, and meditators' reaction to mental stress significantly improved after only five days of training. Garland, Hanley, Farb, and Froeliger (2013) reported similar results: "brief mindfulness training enhanced dispositional nonreactivity, that is, the propensity to metacognitively disengage from distressing mental experiences, which was in turn associated with increased [cognitive] reappraisal use over time" (p. 7). Based on their findings in a self-report study, Ortner et al. (2007) observed, "It is possible that by enhancing controlled attention to the current context …, mindfulness meditation minimizes redundant processing of negative stimuli" (p. 280). Although the neurophysiological mechanisms connecting mindfulness meditation and anxiety reduction are still being explored, studies demonstrating the causal behavioral relationship between the two are numerous; this review highlights only a few.

Possible Transfer to Non-Meditative Domains

Perhaps most significant about meditation as an intervention is the seeming transferable and lasting nature of the demonstrated benefits. Comparing their findings to the existing literature, Moore et al. (2012) explain that results "suggest that an ability that developed and is present during meditation practice appears to generalize to a different task performed when not meditating" (p. 10). "Based on such generalizations," they explain, "we may speculate that meditation practice addresses very fundamental processes of selective and executive attention that may exhibit its beneficial effects in a variety of domains and situations" (p. 12). Although more research is needed to confirm this hypothesis, the findings of neurophysiological research discussed earlier support the conjecture, as meditation practice has been shown to effect changes in the structure and function of the brain itself.

Relevance to Writing Studies

In light of continued demands for pedagogy that channels the attention of increasingly distracted and disengaged learners who often lack control over rhetorical situations, research indicates that mindfulness meditation practice can be a meaningful addition to the classroom. Shapiro et al. (2011) explain the connection of meditation practice to academic performance by linking information processing with intelligence, explaining that "the ability to attend to, remember, and mentally manipulate information is considered important to general cognitive ability and to academic success" (p. 501). Because research indicates that meditation can enhance the quality and efficiency of information processing, it is reasonable to speculate that meditation may engender gains in intelligence and academic success. For this reason among

many, professors like David M. Levy, at the University of Washington, integrate meditation and other contemplative practices into the curriculum (Parry, 2013).

Also applicable to the academic milieu, particularly that of the inherently demanding realm of higher education, are the psychological benefits linked to mindfulness meditation. Adversaries of bringing meditation into the classroom argue that academics are intended for intellectual development, while proponents of the practice emphasize the interdependence of intellectual and emotional development. "Learning is likely to be more effective if educators help to minimise stress and fear at school, teach students emotional regulation strategies, and provide a positive learning environment that is motivating to students," explain Hinton, Miyamoto, and Della-Chiesa (2008, p. 90). By encouraging and helping students to apply strategies that foster self-regulation, teachers facilitate the strengthening of cognitive and metacognitive skills that can make students more capable, adaptable, and enthusiastic learners.

These benefits are of particular relevance to the composition classroom, as tangled writing is often the product of tangled thinking. "Sometimes," explains Elbow (1987), "[writers] get so tied in knots that we cannot even figure out what we *think*" (p. 130). Based on empirical research in conjunction with theoretical speculation, meditation appears to be a viable solution. "When you observe your mind [as in meditation], and see its true nature clearly," explains Rahula, "you become dispassionate with regard to its emotions, sentiments and states…so that you may see things as they are" (p. 74). Skillful perception, which requires the disregarding of irrelevant thoughts and emotions, facilitates skillful communication.

In the 1980s, James Moffett garnered unparalleled respect for the prospect of meditation pedagogy, connecting in his seminal article (1982) psychological interventions and writing

instruction. “Good therapy and composition aim at clear thinking, effective relating, and satisfying self-expression...self-awareness is the means in both cases, and this requires focusing attention on one’s inner speech,” he writes (1982, p. 234). By becoming aware of his thoughts, a learner becomes witness to his mental *discourse*, the root of which means “running to and fro” (Moffett, 1982, p. 239). Upon noticing this discourse, he can “deliberately attempt to narrow down and focus [it], to exert some control over it,” Moffett (1982) explains (p. 236-237). Learning to write well, he argues, is tantamount to learning to discourse well (p. 241).

Of course, the doing of anything well requires a doer, “one who…is concerned to make things happen and not simply to allow things to happen to him” (Rohman, 1965, p. 108). This capacity to act—in this case, to write skillfully—is referred to in some literature as *agency* (Negretti, 2012; Herman, 2008). “Individuals’ ability to exert agency,” says Negretti (2012), “presupposes their awareness of what they do and their ability to develop strategies to control and regulate it” (p. 144). In other words, agency is strongly influenced by metacognition (Negretti, 2012), a notion similarly expressed by Moffett (1982), who contends, “keeping inner speech as the matrix of all writing keeps teaching of writing centered on authentic authorship” (p. 234). That is, to the extent that an individual becomes aware of her thoughts and develops the ability to regulate them, she can adequately express them; in turn, she gains the confidence in her ideas and abilities necessary to produce writing that is her own, rather than borrowed from others.

A seeming contradiction, agency is, to some degree, predicated upon the ability to forget oneself, to focus wholly on the task at hand. Such focus is also integral to writing well. Elbow (1987) explains, “When we examine really good student or professional writing, we can often

see that its goodness comes from the writer's having gotten sufficiently wrapped up in her meaning and her language as to forget all about audience needs: the writer manages to 'break through'" (132). Extending this notion, Rahula (1959) says, "As long as you are conscious of yourself you can never concentrate on anything" (p. 70). Therefore, he contends,

> You should forget yourself completely, and lose yourself in what you do…When [a speaker] forgets himself in his speech, in his subject, then he is at his best, he speaks well and explains things clearly. All great work—artistic, poetic, intellectual or spiritual—is produced at those moments when its creators are lost completely in their actions. (p. 72)

Although the former focus is on ignoring audience and the latter is more abstract, both scholars suggest that complete attention to the action at hand is necessary for producing quality work. Rohman's research (1965) supports these claims. In a study involving the attention- and agency-building activity of meditation, as well as practices of imitation and analogy construction, writing produced at the end of the study was qualitatively better than that produced at the beginning. The results also indicated that "worthwhile writing" became possible for a greater number of students, which in turn influenced their satisfaction with writing and, presumably, their motivation to write.

Further, student comments in Rohman's study (1965) indicate that "the process of meditation [gave] them the experience of insight (p. 110), a commonly reported effect among those who practice meditation. Moffett (1982) noted this relationship as well, stating that "sustained attention to inner speech reveals ideas one did not know one thought, unsuspected connections that illuminate both oneself and the outside objects of one's thought" (p. 235). As writing is fundamentally a process of discovery, the cultivation of insight through a variety of means is among the responsibilities of composition instructors.

Historically, writing research and theories have tended to fall under either the *cognitive* tradition, which examines "the ways our brains manage writing situations," or the *sociocultural* tradition, which studies "the interactions among identities, texts, and contexts," explains Magnifico (2010, p. 167). She argues, however, that a synthesis of the two traditions may benefit composition students. Based on a review of the existing literature, meditation studies have the potential to yield valuable insights for both traditions. Ultimately, the goal of writing studies is "to find the writing strategies that help us tap the intuitive and creative functions of the right brain: to think in complex images rather than in sequential order, to see the whole rather than just the parts, to grasp interconnections, correspondences, resemblances, and nuances rather than the bits and pieces and linear, logical patterns," explains Kathleen Shaughnessy Jambeck, Ph.D. (as cited in Nelson, 2006, pp. 1734-1735). These strategies, of course, must be regulated by metacognition, as students must "adapt their strategies to achieve determinate rhetorical purposes and…monitor and evaluate the successfulness of their texts" (Negretti, 2012, p. 146).

As meditation is a simple practice that has been correlated to these desired effects, it has gained some attention in the field. A recent thread on the Writing Program Administrators listserv that led to the formation of a meditation pedagogy interest group indicates curiosity about the potential value meditation can bring to composition instruction. Pioneers are already integrating meditation into their courses, state Shapiro et al. (2011), and Hill (2006) references the 2005 conference on contemplative practices and education held at Teachers College, Columbia University, as evidence that various contemplative practices are being integrated across the university. "Within the humanities, for example, [contemplative] practices have been used to further our understanding of how a text can be read so that deeper layers of meaning can

become available," he explains (p. 1724). Generally, though, the pedagogical value of meditation is not widely supported within the academic community, and well-researched publications on the topic are growing in number but still difficult to find. Nevertheless, some instructors, like Campbell (1994), have been discouraged from employing meditation practices in class and are publishing about their experiences in efforts to legitimize the integration. The current study adds to this conversation by analyzing robust qualitative data collected in two first-year composition courses at a large Midwestern university during a single semester, grounding conclusions and recommendations in carefully and systematically acquired and analyzed evidence.

METHODS

Participants

This study was conducted during a single semester at a large, midwestern research institution with the students of two sections of ENGL 103 Rhetoric and Composition, the first of two foundational composition courses required of all undergraduates. All students participated in a guided mindfulness practice and completed writing assignments and surveys as part of the class; thirty-eight of those students (ages 18 through 25) participated in this study through voluntary consent. At the end of the semester, three students participated in individual interviews. I did not require or collect additional work from the remaining participants other than a signed consent form.

Mindfulness Practice

At the beginning of each 50-minute class session (Mondays, Wednesdays, and Fridays), I led the students in a five-minute mindful breathing practice. This practice was simple and brief (see Appendix A), with much space left for silence, though I gave periodic reminders to bring the attention back to the breath if it had wandered. After the first few weeks of practice, I adapted the script to students' energy levels; if they came to class seeming especially tired, I gave more frequent reminders to bring their attention back to their breath, and I gave them focal points to choose from: their nostrils, their abdomen, or the spot on their forehead between the eyebrows. If they seemed particularly energetic and talkative when they arrived, I gave fewer reminders,

allowing them to settle into the silence. Midway through the semester, I began instructing students to push their chairs away from the table in front of them, to place their feet flat on the floor, and to sit up straight, as some students had mentioned in their reflective writing that they were struggling with falling asleep during the practice.

Data Collection

To gather as much data as possible in a variety of formats and at different points throughout the semester and, thus, triangulate the research, I elicited student input through whole-class surveys and reflective writing samples as well as interviews with a few students. I also gathered data for qualitative analysis through evaluative writing samples. Lastly, I gathered data through written observation of students' body language during the weekly timed writing sessions.

Surveys

Throughout the eight-week study, students completed a total of seven surveys that solicited input about their attitudes toward writing and toward the mindfulness practice, in addition to their general sense of mindfulness in daily life. To allow for examination of any changes in these factors over time, students completed these surveys in intervals: three during Week 3, one during Week 7, and three during Week 11. The surveys used (see Appendix B) are as follows:

- **The Daly-Miller Test (Likert scale; Daly & Miller, 1975):** Considered the "definitive writing apprehension measurement tool in the field of composition"

(Herman, 2008, p. 53), this survey was completed during Weeks 3 and 11, the first and last weeks of the study.

- **Mindfulness Attention Awareness Scale (Likert scale; Brown & Ryan, 2003):** Widely used in the field of psychology and in Second Language Acquisition research to measure day-to-day mindfulness, or "enhanced attention to and awareness of current experience or present reality" (Brown & Ryan, 2003, p. 822), this survey was completed during Weeks 3 and 11.
- **Researcher-created surveys (short answer):** Soliciting information not covered by the other surveys and regarding experience with and attitudes toward mindfulness practice, these surveys were completed during Weeks 3, 7, and 11. The three surveys were largely the same, with slight variations to account for changes in amount of experience from beginning to end of semester.

Timed Writing Samples

In the computer lab where our class was held, for eight consecutive Mondays (beginning Week 4 and ending Week 11) following the mindfulness practice, students composed Blackboard Journal entries for fifteen minutes in response to one of two prompts (see Appendix C). On even-numbered weeks, the prompt required reflective writing about the guided mindfulness practice; these reflective essays provided information about students' thoughts and feelings about the practice throughout the study. On odd-numbered weeks, the prompt required evaluative writing about instructor-selected published articles (see Appendix D); these essays provided opportunities for analysis of critical thinking and writing skills.

Observation

During the timed writing session each Monday, in lieu of videotaping the class (which would require more resources than were available and more elaborated consent issues), I observed students' body language and took detailed notes describing all actions that I witnessed. Whenever I noted an action, I also noted the amount of text the student had written as well as his or her interaction with the text: whether he or she was typing, where he or she was looking, what he or she appeared to be doing (reading the typed text or the prompt, for example), and so on. The goal of this observation was to construct a clear, unfiltered, and real-time depiction of students' body language to be both analyzed and compared with the essay they wrote on that day. This comparison yielded insights about the relationship between students' body language and their self-reported experiences with the mindfulness practice.

Interviews

During the last week of the semester (Week 16), I asked six study participants to meet with me for individual, thirty-minute interviews about their experiences with the semester-long mindfulness practice. These interviews began with a set of scripted questions (see Appendix D) and evolved naturally through conversation. Because recording equipment was unavailable, I transcribed the interviews manually, asking for repetition and/or clarification where necessary. I attempted to include in my data collection exactly what the students said, without interpretation or speculation.

Data Analysis

After collecting all the data, I analyzed participants' direct responses to questions and prompts and drew inferences from those responses, looking for possible relationships among the data and for opportunities for further investigation through future research.

Survey Responses

I entered all the data from the Weeks 3 and 11 Daly-Miller Test (DMT) and the Mindful Attention Awareness Scale (MAAS) into a spreadsheet for comparison over time. Although I accounted for deviations of one point (on the DMT's five-point Likert scale and the MAAS's six-point Likert scale) in my analysis, I took into consideration deviations of at least two points, which accounted for a 30- to 40-percent minimum change over time.

Timed Writing Samples

When reading the reflective essays, I looked for trends in comments about the mindfulness practice; when reading the evaluative essays, I looked for trends in insight, analysis, and style. For both types of essays, I compared students' essays to one another's and compared individual students' essays to their own work over time. I also compared students' comments in the reflective essays with their responses to the DMT and MAAS surveys and compared all the timed essays to my observation notes from the corresponding days. The class-wide comparisons enabled me to see trends according to personality and other affective factors, and the individual, time-lapse comparisons enabled me to see trends that may or may not have occurred due

partially to sustained mindfulness practice. The search for such trends was intended to generate questions for further inquiry and research.

Observation

I used my observation notes as a filter through which to analyze students' timed writing samples. In particular, I looked for potential relationships (both explicit and implicit) between students' body language and their writing. This information was intended to help me identify cues indicating that students are anxious or distracted and see whether these cues changed as students became more practiced in mindfulness; it also helped me to assess my assumptions about the meanings of students' body language, because those assumptions inevitably influence decisions about pedagogy.

Interviews

The interviews were straightforward, providing the material for more in-depth case studies that enabled me to speculate about implications for future research on mindful writing pedagogy.

RESULTS

This study examines the effects of a regular in-class mindfulness practice on students' attention, metacognitive awareness, and writing apprehension. To establish the validity of this qualitative research, I triangulated the data by conducting a variety of surveys, including both Likert-scale and short-answer types; collecting several timed, in-class writing samples, both reflective and evaluative; taking observation notes as students composed the writing samples; and interviewing selected students about their experiences during the study. Without a control group, these data are difficult to generalize, though they do provide valuable insights on which future research might elaborate. The sections that follow present the most salient data collected from each medium.

Surveys

To gather both quantitative and qualitative data about students' writing apprehension, general state of mindfulness, and perspectives on our in-class mindfulness practice, I distributed five different surveys at varying points throughout the study. Students completed the Daly-Miller Test of writing apprehension and the Mindful Attention Awareness Scale at the beginning and end of the study, and they completed three short-answer surveys created by me, one each at the beginning, middle, and end of the study. The following sections present and summarize the data collected.

The Daly-Miller Test (DMT) of Writing Apprehension

Of the 38 students participating in the study, five missed one of the DMT surveys (taken in Weeks 3 and 11; see Appendix B), so the following results represent data collected from 33 students, or 87 percent of the total participants. The DMT comprises 26 questions to which respondents select from a five-point Likert scale. Some of the questions are positively worded (the higher the Likert value circled, the *lower* the apprehension reflected), and some are negatively worded (the higher the Likert value circled, the *higher* the apprehension reflected). (Question 2, "I have no fear of my writing's being evaluated," is an example of a positive statement value, or PSV; Question 1, "I avoid writing," is a negative statement value, or NSV.) The sequence of positive and negative statements is randomized to preclude takers from recognizing a pattern, which might influence their responses.

To score the DMT, the total positive statement value (PSV) is added to the average score of 78, and then the total negative statement value (NSV) is subtracted (78 + PSV – NSV). The resulting score places a student in one of the following three categories (Stoner, n.d.):

- **Range 60-96: Most students who score in this range do not experience a significantly unusual level of writing apprehension.** However, the closer the score to the limits of this range—that is, scores close to 60 and 96—the more apt [the student is] to experience feelings or behaviors characteristic of the next range of scores. A score of 78 places [the] writer on the mean, which is the middle point between two extremes, or conditions recorded in a large sample of students. The closer [the student is] to the mean, the better. Nonetheless, [students] may manifest signs of writing apprehension in performing certain writing tasks or in writing with varying purposes for different types of audiences.
- **Range 97-130: A score in this range indicates that [a student has] a low level of writing apprehension.** The higher [the] score in this range, the more troublesome [the] lack of apprehension. [The student] may not be motivated to listen or read [assignments] carefully […], to pay attention to due dates, to remember criteria for evaluation, or to act upon recommendations that might improve subsequent drafts of […] essays. [This student does] not fear writing or

evaluation of writing, but […] may not be adequately motivated to work on [his or her] writing.

- **Range 26-59: A score in this range indicates […] a high level of writing apprehension.** The lower [the] score in this range, the more severe [the] anxiety. [This student is] nervous about writing and fearful of evaluation. In fact, research shows that those who score extremely low in this range will not take a course, select a major, or accept a job they know involves writing.

Table 1 shows a summary of the results of the DMT surveys, including the 33 students' Week 3 and Week 11 DMT scores, the change in those scores between Weeks 3 and 11, and the distance between both the Weeks 3 and 11 scores and the DMT mean.

Simple Analysis

Overall, more scores decreased than increased, indicating that students became more apprehensive over the eight-week study period (see Figure 1). Although more students experienced increases in apprehension than decreases over the eight-week study period (refer to the "WK 3 to WK 11 Score Change" column in Table 1), the extent of that change in both increases and decreases was similar. As shown in Figure 2, the average score change demonstrating decreased apprehension was a value of 10, and the average change demonstrating increased apprehension was a value of 11.8. These numbers indicate that students' writing apprehension, on average, increased and decreased to similar degrees, like the swing of a pendulum from the fulcrum of the Week 3 starting point. The extent of the increase in apprehension was, however, about 15 percent greater than the decrease in apprehension.

Table 1

The Daly-Miller Test (DMT) Data

The columns show the 33 students' scores, the difference between the Weeks 3 and 11 scores, and the scores' distance from the DMT mean.

Student	WK 3 Score	WK 11 Score	WK 3 to WK 11 Score Change	WK 3 Distance from Mean	WK 11 Distance from Mean
1	76	78	2	-2	0
2	92	71	-21	14	-7
3	96	83	-13	18	5
4	96	92	-4	18	14
5	90	75	-15	12	-3
6	85	69	-16	7	-9
7	94	92	-2	16	14
8	101	98	-3	23	20
9	59	66	7	-19	-12
10	96	75	-21	18	-3
11	51	46	-5	-27	-32
12	89	76	-13	11	-2
13	73	86	13	-5	8
14	107	90	-17	29	12
15	54	60	6	-24	-18
16	86	96	10	8	18
17	57	87	30	-21	9
18	74	54	-20	-4	-24
19	94	97	3	16	19
20	86	79	-7	8	1
21	99	84	-15	21	6
22	67	62	-5	-11	-16
23	91	88	-3	13	10
24	80	85	5	2	7
25	83	55	-28	5	-23
26	71	55	-16	-7	-23
27	115	121	6	37	43
28	88	101	13	10	23

Table continued on next page.

Table 1 cont.

Student	WK 3 Score	WK 11 Score	WK 3 to WK 11 Score Change	WK 3 Distance from Mean	WK 11 Distance from Mean
29	75	69	-6	-3	-9
30	78	92	14	0	14
31	93	104	11	15	26
32	77	64	-13	-1	-14
33	81	76	-5	3	-2

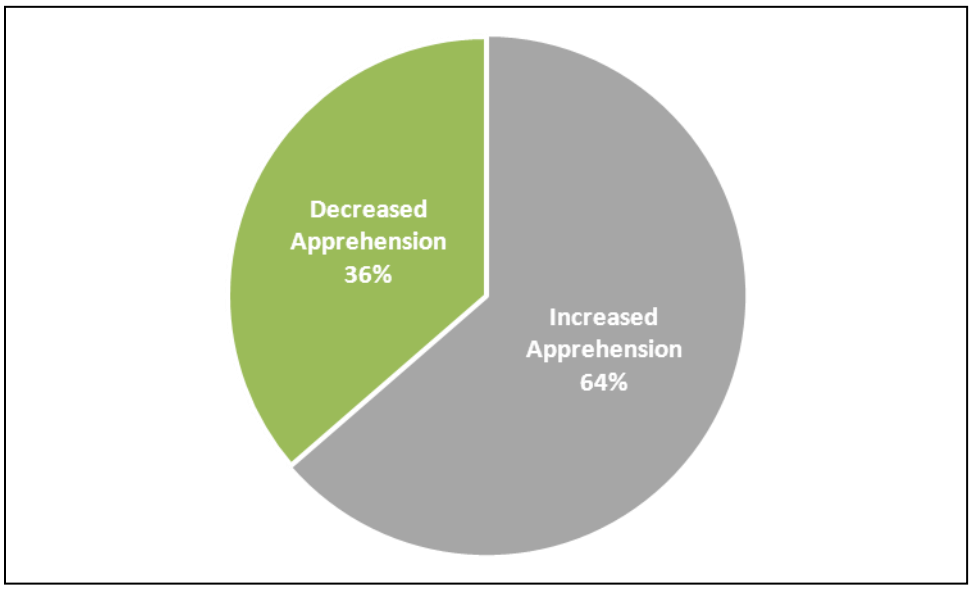

Figure 1: Overall changes in writing apprehension. The change between the Week 3 and Week 11 scores for 21 of the 33 students was negative, indicating increased apprehension, and the change for the other 12 students was positive, indicating decreased apprehension.

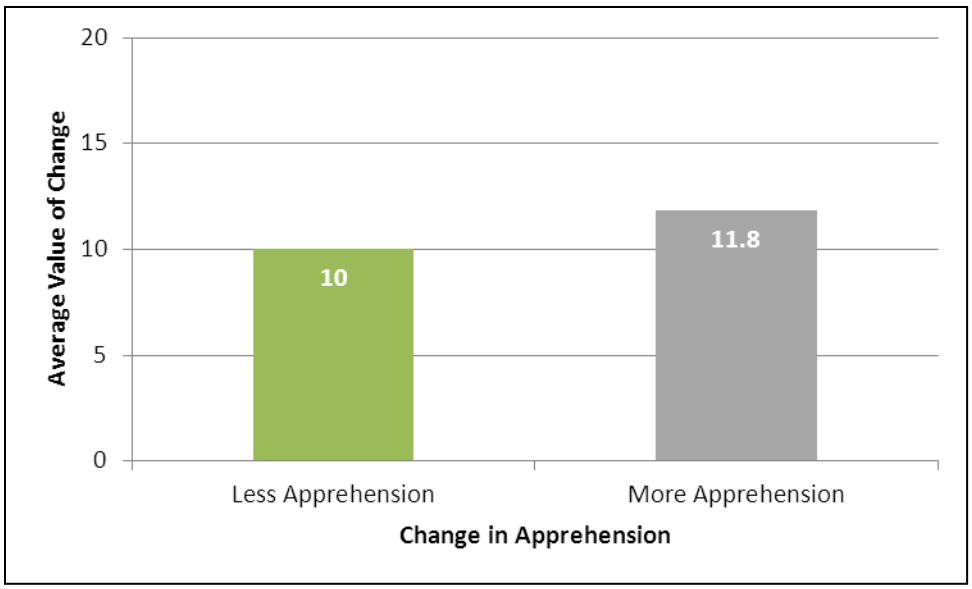

Figure 2: Absolute value of average change in apprehension. The average change for scores indicating less apprehension in Week 11 than in Week 3 was 10 points, and the average change for scores indicating more apprehension in Week 11 was 11.8 points. Apprehension increased 15 percent more than it decreased.

Analysis of Data Compared to the DMT Mean

A closer look at the data relative to the mean of 78 helps to contextualize these changes in apprehension level, as increased apprehension is sometimes beneficial (for example, those students with low apprehension, who may lack motivation, may benefit from a small increase in apprehension). In Week 3, four students had scores indicating a low level of writing apprehension, and four students had scores indicating a high level of writing apprehension. The scores of the remaining 25 students fell in the middle range, indicating a typical level of writing apprehension. Figure 3 shows the distribution of these scores compared to the mean DMT score of 78.

In Week 11, the DMT scores changed slightly. Five students (one more than in Week 3) scored in the low-apprehension range, and four (the same as in Week 3) scored in the high-apprehension range. The remaining 24 students fell in the normal range. Figure 4 shows the distribution of these scores compared to the mean DMT score of 78.

Although the Week 11 distribution of scores across the three ranges is nearly identical to that of Week 3, individual students' scores changed, sometimes substantially, during that time. (For example, Student 2 dropped from 14 points above the mean to 7 points below the mean, and Student 17 rose from 21 points below the mean to 9 points above the mean.) As the mean represents the ideal level of apprehension for productivity and confidence, these moves toward and away from it merit investigation (see the "Discussion" section).

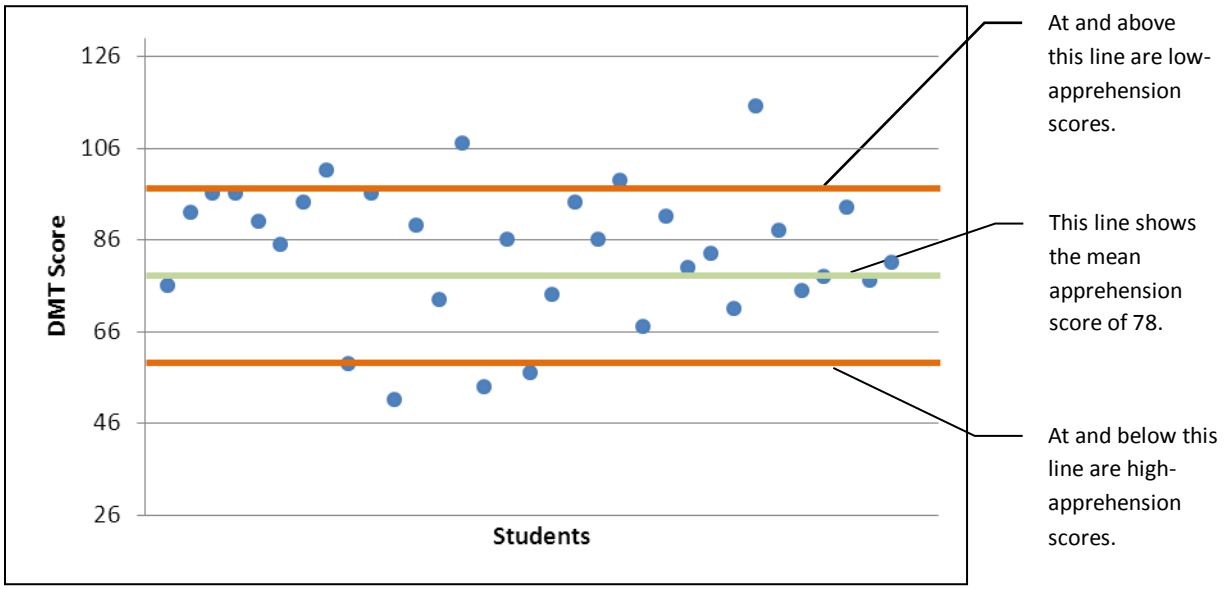

Figure 3: Week 3 DMT scores. The low- and high-apprehension categories comprise four students each; the majority of the students fell in the normal range for apprehension. Within the normal range, individual scores' proximity to the DMT mean varied.

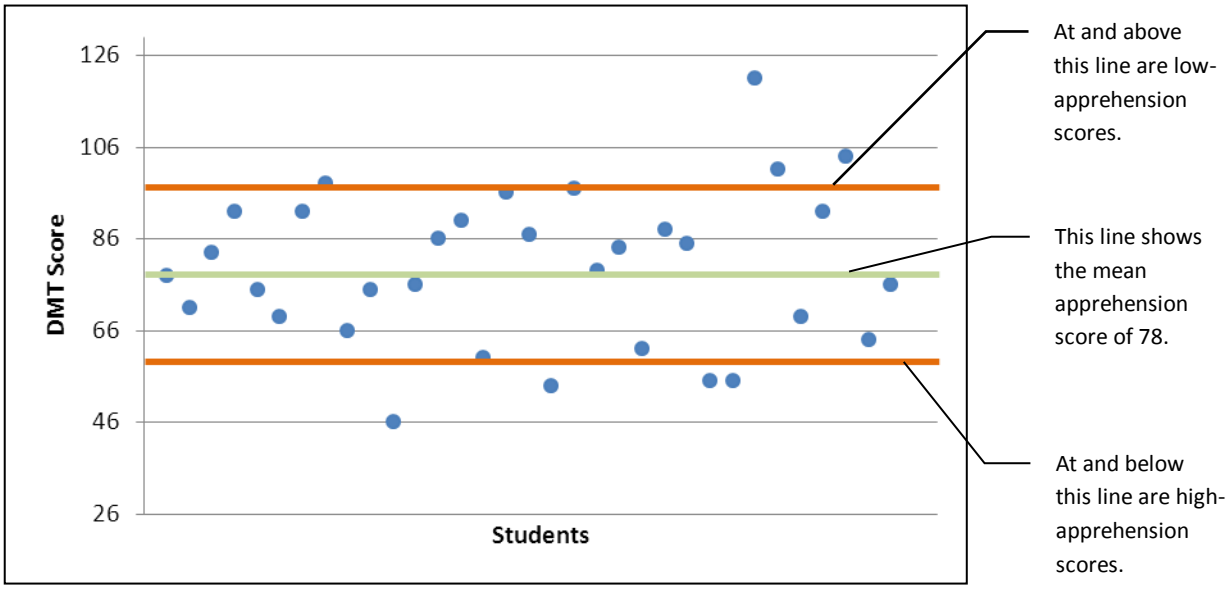

Figure 4: Week 11 DMT scores. The low-apprehension category comprises five students, and the high-apprehension category comprises four students; the majority of the students fell in the normal range for apprehension. Within the normal range, individual scores' proximity to the DMT mean varied but was generally different from that of Week 3.

As explained in Stoner (n.d.), the greater the deviation from the mean in either direction, whether indicative of higher or lower apprehension, the greater the potential negative effects demonstrated in students' writing performance. Higher scores (less apprehension) tend to correlate to decreased motivation and effort, whereas lower scores (high apprehension) tend to correlate to avoidance of writing tasks. Figure 5 pairs each student's Week 3 and Week 11 deviations from the mean to show whether that student's score moved closer to or away from the mean after eight weeks of class and of mindfulness practice. The blue lines signify the Week 3 deviation, and the orange lines signify the Week 11 deviation. Ideally, the orange lines would be shorter than the blue no matter their direction, whether above or below the *x*-axis; this comparison indicates a move toward the mean by the end of the study.

In Week 11, the scores of 17 students were closer to the mean than in Week 3, and the scores of the remaining 16 students were farther from the mean than in Week 3. According to the DMT categories, these changes indicate that 17 of the 33 students who took the surveys (that is, 52 percent) experienced beneficial changes in their level of writing apprehension between the beginning and end of the study; the other 16 students (that is, 48 percent) experienced unbeneficial changes in their level of writing apprehension (see Figure 6 for a visual comparison). Of those 17 students, the scores of 13 decreased between Weeks 3 and 11 (see Figure 7); this decrease indicates that early in the semester, those students experienced perhaps unbeneficial levels of writing confidence that became more conducive to academic success by the end of the study. Of the 16 students whose scores moved away from the mean, 8 scores increased, and 8 scores decreased (see Figure 8). This split indicates that half of these 16 students

became less apprehensive about their writing (and perhaps more disengaged), and half became more apprehensive (perhaps also more disengaged).

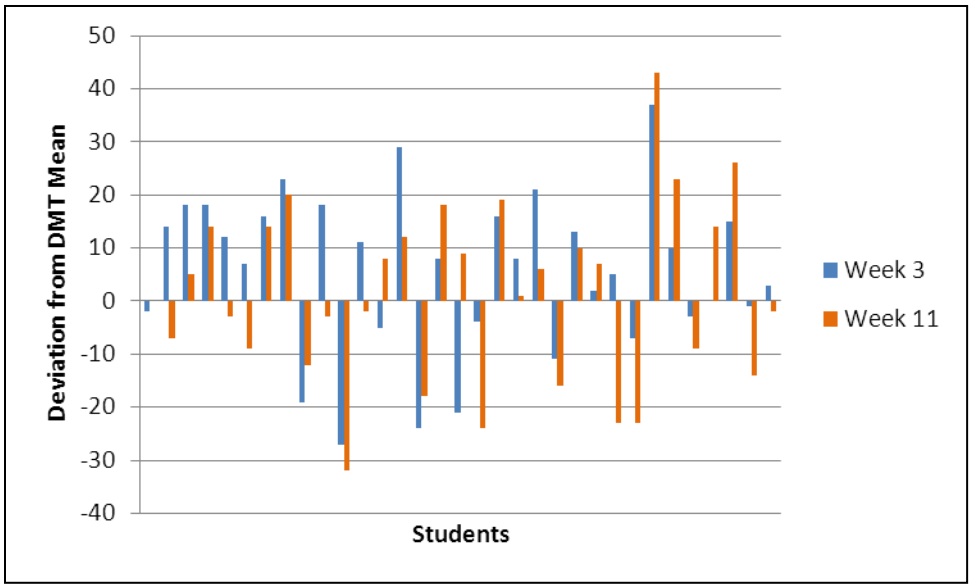

Figure 5: Changes in deviation from DMT mean score. Each pair of blue and orange lines represents one student's deviation from the mean in Weeks 3 and 11. An orange line shorter than its blue counterpart indicates a move toward the ideal level of apprehension.

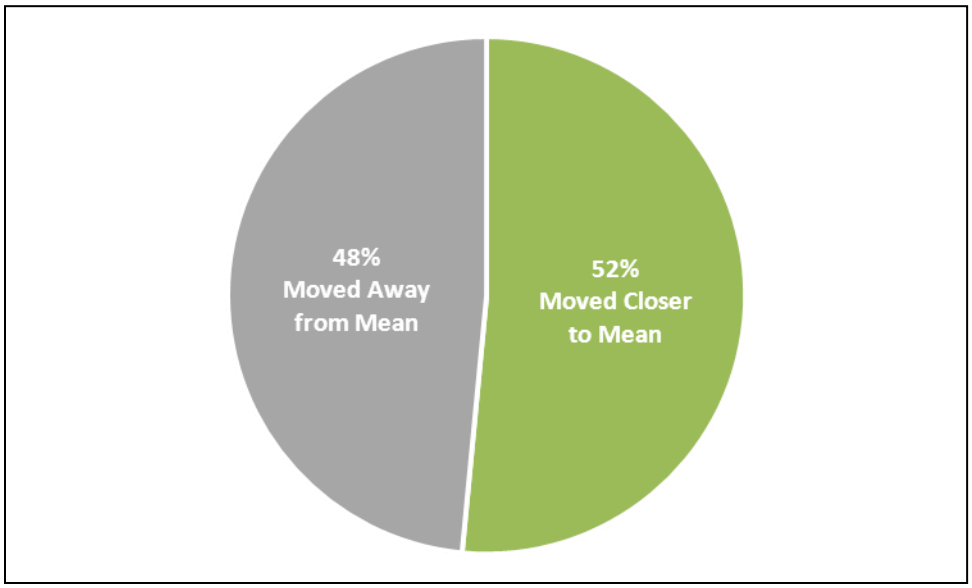

Figure 6: Comparison of DMT score changes in relation to DMT mean. Just over half of the 33 students moved closer to the ideal level of apprehension by the end of the study, although just under half of them moved further from that ideal.

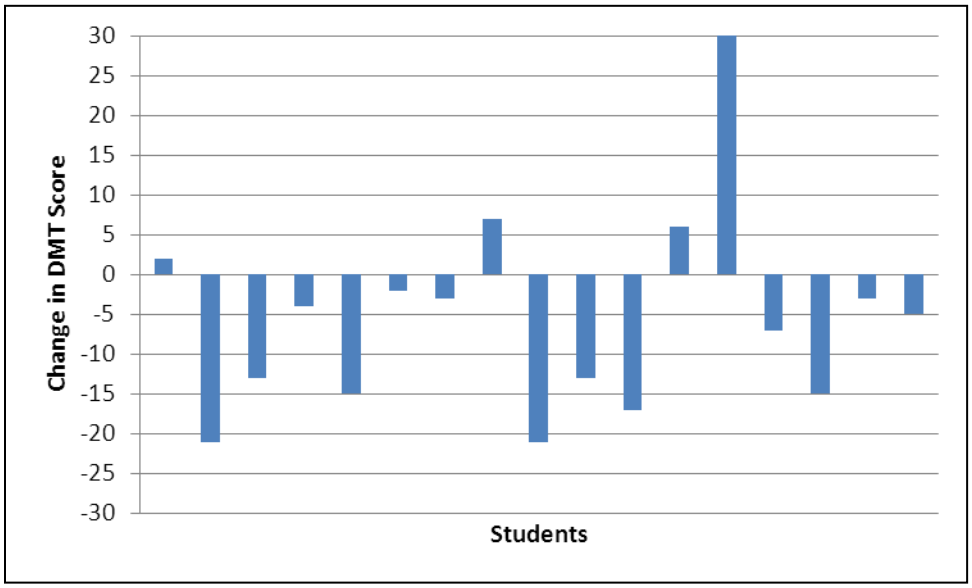

Figure 7: Changes in DMT scores that moved closer to DMT mean. Of the 17 students (52 percent of sample) who moved closer to the ideal level of apprehension, most of them did so by becoming more apprehensive, demonstrated by decreases in DMT scores.

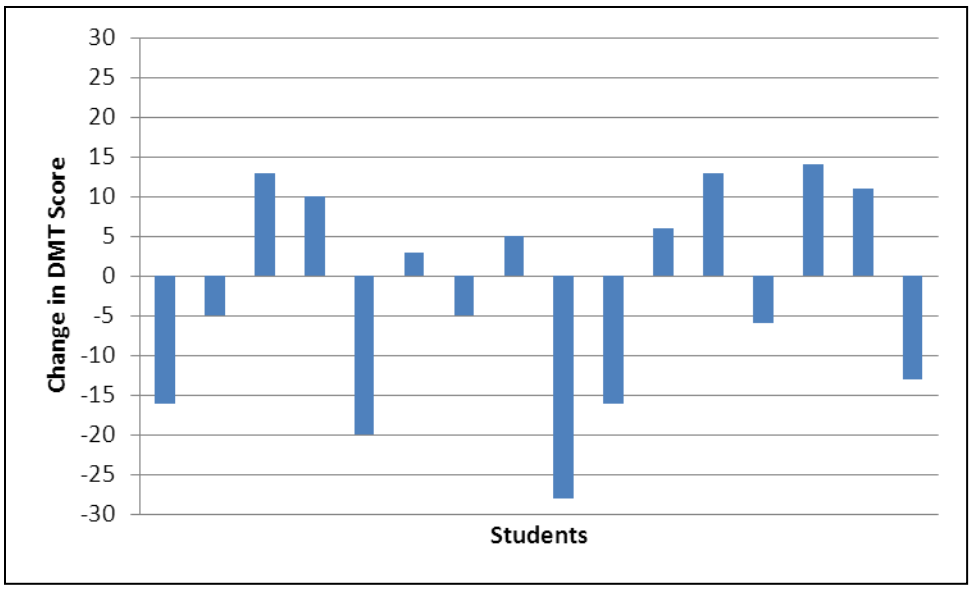

Figure 8: Changes in DMT scores that moved away from DMT mean. Of the 16 students (48 percent of sample) who moved away from the ideal level of apprehension, half did so by becoming more apprehensive (demonstrated by decreases in DMT scores), and half did so by becoming less apprehensive (demonstrated by increases in DMT scores).

Analysis by Category of Writing Apprehension

Another meaningful way to look at the data is by category of writing apprehension. In the low writing apprehension category (97 to 130), the average score decreased by 1.3 points, moving closer to the mean. In the normal category (60 to 96), the average score decreased by 5.4 points, again moving closer to the mean. In the high writing apprehension category (26 to 59), the average score decreased by 2.8 points, moving away from the mean. (Figure 9 shows the comparisons.) Although seemingly minor, these average changes suggest that those with apprehension levels in the normal category experienced the greatest change, and change in the positive direction (toward the mean). In contrast, those with the lowest apprehension and those with the highest apprehension experienced change to a lesser extent, the former being lesser change in the positive direction (toward the mean), and the latter being lesser change in the negative direction (away from the mean).

Analysis by Question Type

Consideration of the number, size, and type of changes (that is, increase or decrease) by question type (PSV or NSV) provides further insight about trends across the study sample. Both increased Likert-scale values in response to PSV (+) questions and decreased values in response to NSV (-) questions suggest *increased* apprehension in regard to those particular questions. In contrast, both decreased Likert-scale values in response to PSV questions and increased values in response to NSV questions suggest *decreased* apprehension in regard to those particular questions. As Figure 10 shows, across the study sample, the quantity of 1-point and 2+-point changes between Weeks 3 and 11 was greater for those questions signaling decreased writing

apprehension than it was for those questions signaling increased writing apprehension. That is, more responses indicated *decreased* writing apprehension than increased apprehension. However, because the total DMT scores reveal a greater overall *increase* in writing apprehension than decrease (refer to Figure 1), we can infer that the *extent* of the apprehension increases was greater than the extent of the decreases. Increases in apprehension were thus more substantial than decreases, although decreases occurred more frequently. This finding is consistent with the findings shown in Figure 2.

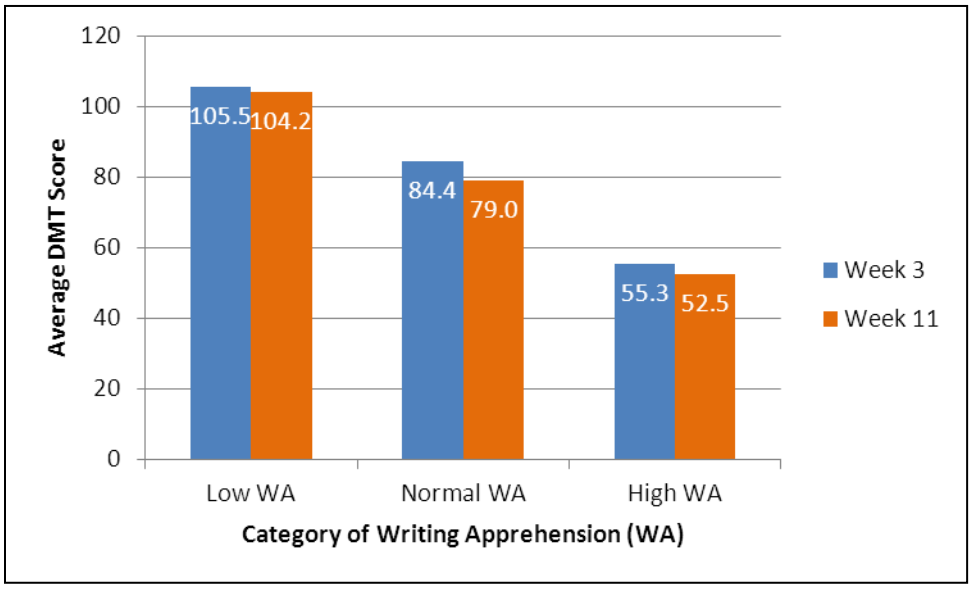

Figure 9: Change in average DMT score by category. The change in average score of the majority of students, who fell within the normal category of writing apprehension, was greater than the change in average score of those in the low and high writing apprehension categories. This average score for the normal group also moved closer to the ideal of 78.

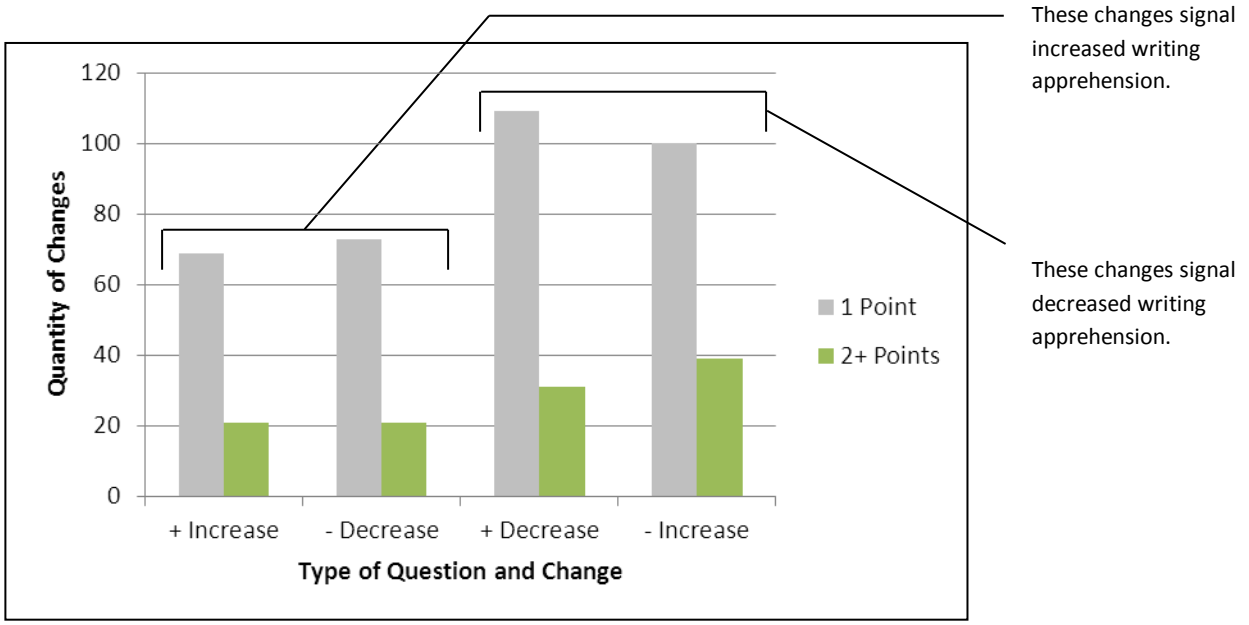

Figure 10: Comparison of changes by type of question and change. Responses to individual questions indicate that decreases in apprehension occurred more frequently in Week 11 than did increases in apprehension.

The Mindful Attention Awareness Scale (MAAS)

Because the students completed the MAAS and DMT surveys on the same day, the same 33 students who completed the DMT also completed the MAAS (see Appendix B). The MAAS is a 15-question assessment affording a six-point Likert scale. All questions are negatively worded (for example, "I break or spill things because of carelessness…" and "I find it difficult…"). The lower end of the scale, "Almost Always," indicates little to no mindfulness, and the upper end, "Almost Never," indicates much mindfulness. The MAAS score is calculated by computing the mean of the responses to the 15 question; the higher the score, the higher [the] level of dispositional mindfulness, which "involves both attention and cognitive components that influence how individuals perceive and react to their emotions" (McLaughlin, 2010). Table 2

provides a summary of the data collected from this instrument, including the students' scores from Weeks 3 and 11 and the difference between those scores. This difference indicates whether and by how much a student's score increased or decreased by Week 11, allowing for analysis of the extent of students' changes in mindfulness. Although not a direct measure of writing skill, the MAAS was used to examine the overall impact of the thrice-weekly, five-minute mindfulness practice on students' experience of mindfulness beyond the classroom. In particular, I wanted to know whether such a short practice, repeated regularly, might yield transferable effects that might enhance students' overall college writing experience.

Of the 33 students who completed both the Week 3 and Week 11 MAAS surveys, 13 demonstrated an increase in mindfulness, 19 a decrease, and 1 no change (see Figure 11). Despite this majority decrease in mindfulness, from another perspective the data reveal that fewer scores fall into the less-mindful half of the scale (from 0 to 3) in Week 11 than in Week 3. Such a change, though rather small in extent, indicates that some of the students with scores originally in the lower half moved closer to the upper half by the end of the study; that is, the most distracted students may have benefitted most, as they moved from the lower to the upper half of the mindfulness scale. This change is made evident in Figures 12 and 13, which show plots of the Week 3 and Week 11 scores, respectively.

Table 2

The Mindful Attention Awareness Scale (MAAS) Data

The columns display the students' Week 3 and 11 scores and the change in those scores, whether positive or negative, over time. Overall, 13 students' scores demonstrate an increase in mindfulness, 19 a decrease, and 1 no change.

Student	WK 3 Score	WK 11 Score	WK 3 to WK 11 Score Change
1	3.07	3.07	0.00
2	4.40	4.67	0.27
3	3.40	3.47	0.07
4	4.80	4.67	-0.13
5	3.33	3.00	-0.33
6	2.33	1.67	-0.67
7	4.20	4.13	-0.07
8	4.07	4.73	0.67
9	2.40	3.13	0.73
10	3.13	3.33	0.20
11	3.87	3.67	-0.20
12	4.20	3.73	-0.47
13	4.00	4.33	0.33
14	4.87	5.13	0.27
15	2.53	2.13	-0.40
16	4.07	4.87	0.80
17	1.93	2.93	1.00
18	4.93	4.80	-0.13
19	4.00	3.53	-0.47
20	3.53	3.47	-0.07
21	2.27	2.87	0.60
22	3.07	3.00	-0.07
23	4.07	4.13	0.07
24	4.60	3.93	-0.67
25	3.27	2.87	-0.40
26	3.27	3.13	-0.13
27	4.40	4.87	0.47
28	4.13	3.40	-0.73

Table continued on next page.

Table 2 cont.

Student	WK 3 Score	WK 11 Score	WK 3 to WK 11 Score Change
29	4.87	4.00	-0.87
30	4.27	3.87	-0.40
31	4.00	3.40	-0.60
32	3.67	5.00	1.33
33	3.53	2.80	-0.73

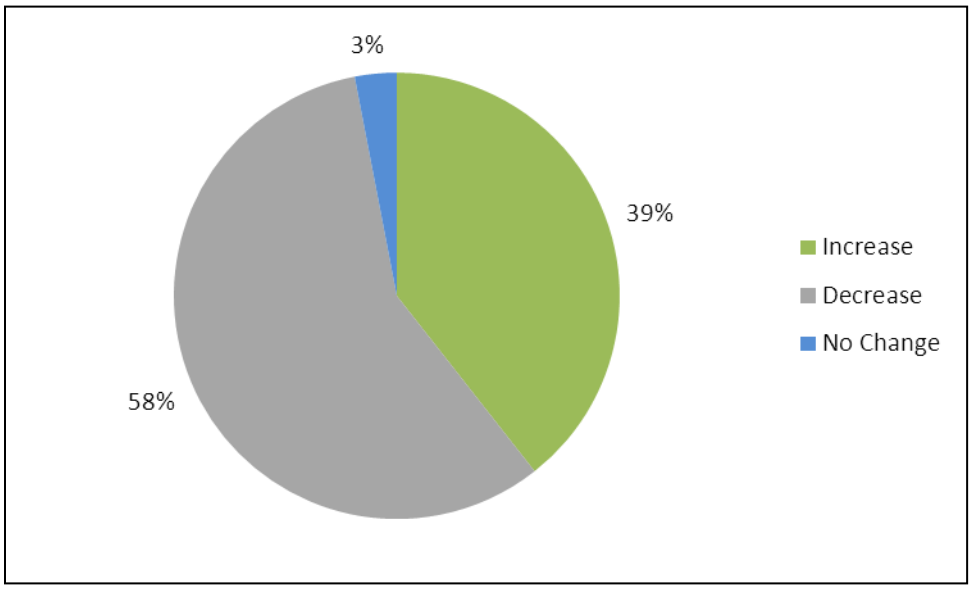

Figure 11: Changes in mindfulness as a class. By Week 11, the MAAS results indicate that 58 percent of students became less mindful, 39 percent became more mindful, and 3 percent experienced no change in mindfulness.

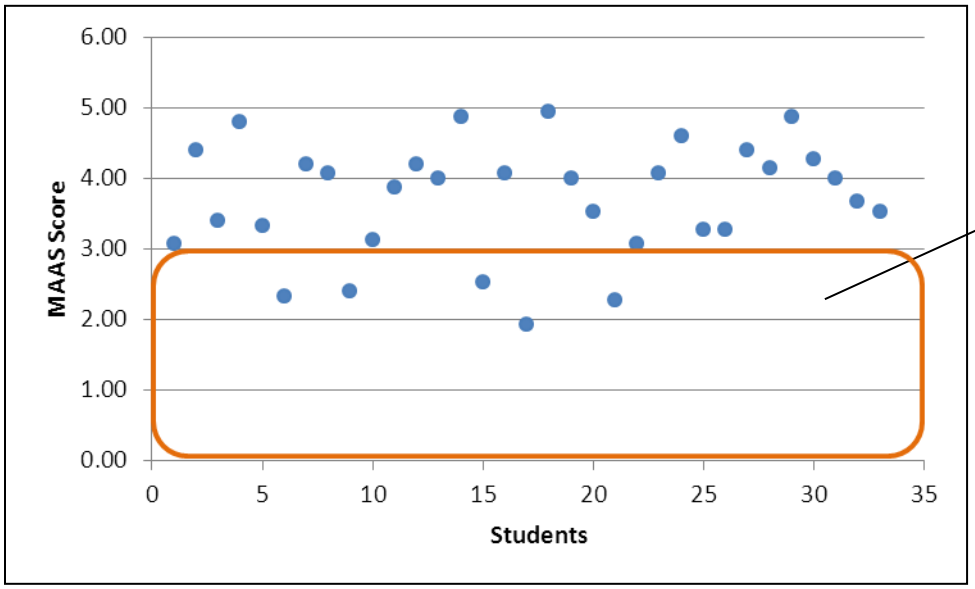

Figure 12: Week 3 MAAS scores. The majority of these scores are in the upper half, but five are in the lower half, approximately 0.5 point or more away from the midline (3.00).

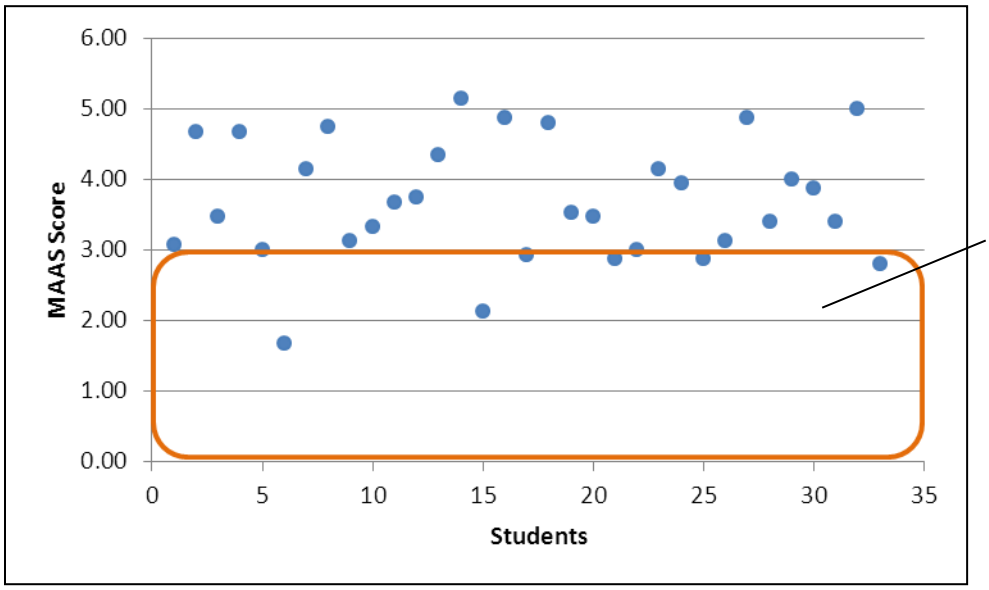

Figure 13: Week 11 MAAS scores. As in Week 3, the majority of these scores are in the upper half, but those in the lower half—except two scores—are less than 0.5 point away from the midline (3.00). More of the scores fell in the top half of the mindfulness range in Week 11 than in Week 3, a positive though possibly insignificant change.

The extent of these changes, however, is minimal. Only 11 of the 33 students' scores changed by at least 0.5 point (a minimum 8-percent change), and only 2 students' scores changed by at least 1 point (a minimum 17-percent change). The greatest change (by 1.33 points), evidenced by only one student, was a 22-percent score increase. Figure 14 pairs each student's Weeks 3 and 11 MAAS scores to show whether and by how much the score increased or decreased by the end of the study. On average, the increases in scores were by 0.52 points, or 9 percent; the decreases were, on average, by 0.40 points, or 7 percent. Although both of these averages indicate minimal change, the extent of increases was slightly higher than that of decreases, as shown in Figure 15. This comparison suggests that students who became more mindful did so to a greater degree than those who became less mindful.

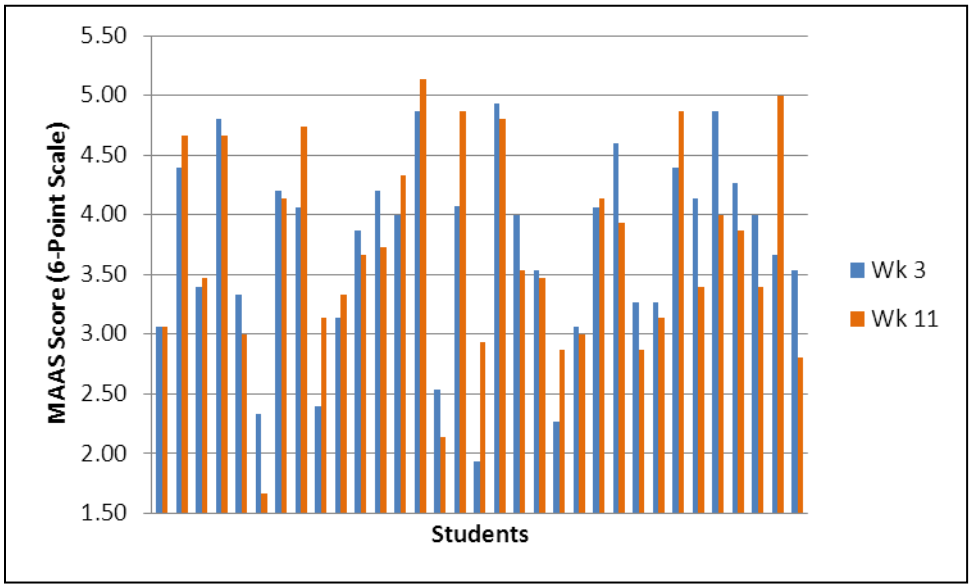

Figure 14: Changes in mindfulness by student. The blue lines represent the Week 3 scores, and the orange lines represent the Week 11 scores. Pairs with orange lines longer than blue lines indicate an increase in mindfulness and are desirable.

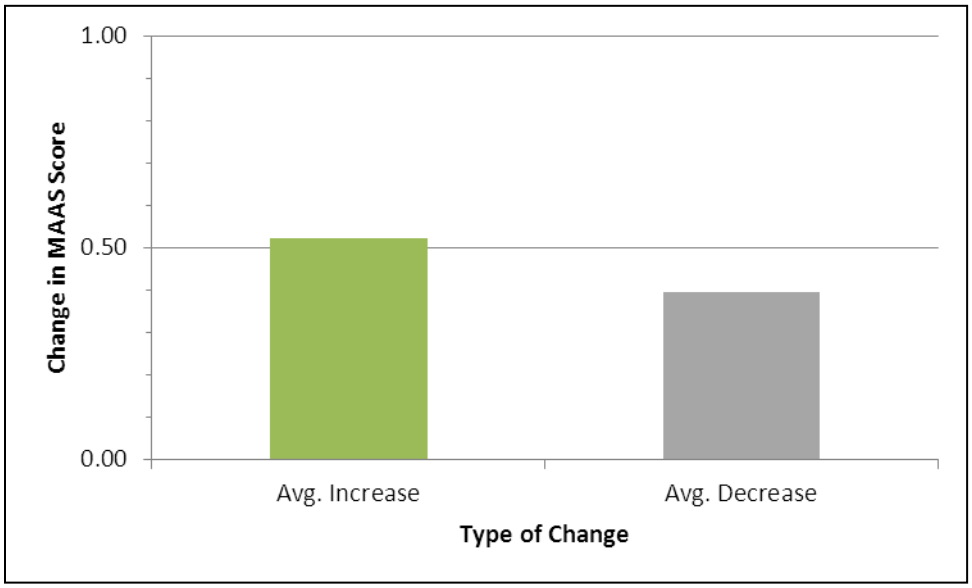

Figure 15: Absolute value of average MAAS change over time. The extent of the average increase was comparable to that of the average decrease, although the increase was slightly greater.

Short-Answer Surveys

In Weeks 3, 7, and 11 (the beginning, middle, and end of the study), students completed a short-answer survey that inquired about their levels of stress and their stress-management habits when faced with difficult writing assignments, their experiences with meditation, their attitudes toward our in-class mindfulness practice, and their use of the practice (if any) outside of class. Although 38 students participated in the study, the number of completed surveys varied due to absences and, in some cases, incomplete responses. In these cases, I categorized the data as "No Answer" and accounted for it in the graphs that follow.

Responses to Writing-Assignment-Induced Stress

The Week 3 survey (see Appendix B) was intended to gather information about students' experiences with stress and meditation coming into the class, to be compared with the same

experiences at the middle and end of the study (Weeks 7 and 11). The first question elicited information about students' existing methods for coping with stress associated with a writing assignment. As shown in Figure 16, students provided a variety of answers, though the most frequent centered on avoidance, distraction, and respites. The fourth most common response indicated that writing assignments did not cause stress. Because some students mentioned more than one stress response, the total number of responses (44) was greater than the number of students (38); to avoid skewing the data by choosing only one of a few responses by one student, I counted the total number of responses and included them all in Figure 16. Some of the responses—like seeking help and breaking down the task—demonstrate means of coping with stress productively. Most compelling, however, is the notion that over one-third of the responses allude to avoidance (procrastination) and distraction (watching TV, listening to music, or surfing the Web). Although the third most common response—taking a break—can be productive, sometimes it can be just a means of avoidance. Because the survey collected students' own written responses, it did not account for this potential confusion. As a result, the productivity or unproductivity of the third most common response cannot be determined.

The Week 7 and Week 11 surveys inquired whether students noticed a change in their responses to stress, though the students were not provided with their responses on the Week 3 survey. (Because stress responses tend to be habitual, I assumed that students would be well familiar with their own tendencies and did not want them to be primed by a previous response.) This question, like its complement on the Week 3 survey, was open-ended, and students' responses varied in content and specificity. Figure 17 shows their Weeks 7 and 11 responses side-by-side and distilled to "Change" or "No Change" (or "No Stress" or "No Answer" as

needed). The graph provides a glimpse of the class's perceived change in their management of stress associated with writing assignments. In both Weeks 7 and 11, the majority of students noticed no change in their stress response. However, in Week 11, more students reported having no stress when faced with a writing assignment than in Week 7, and fewer students reported noticing no change. Only one more student noticed a change in Week 11 compared to Week 7.

These numbers (and their corresponding commentary) indicate that students' responses and/or perceptions were not always clear, accurate, or honest, or that they did not understand what was meant by "stress response," as the responses were at times contradictory or irrelevant. In Week 7, for example, one student wrote that he had noticed a change in his stress response, though his explanation pertains not to his means of *managing stress* but to the perceived benefits of the practice: "I can write more open and clearly. [The meditation] helps me gather the information I need in my head to write more organized." In addition, this student's Week 11 response contradicts his Week 7 claim that his stress response changed, as he explained, "I do not have stress when writing." Another student noted that she "might not realize it if [the meditation] had helped with her stress response," indicating a lack of the perspective that often comes only in hindsight. Although some data were not consistent, in order to accurately represent the data as collected, I have included students' responses as they gave them, contradictory or not. These data, as a result, must be considered as loosely representative of the reality experienced by the students on the survey days.

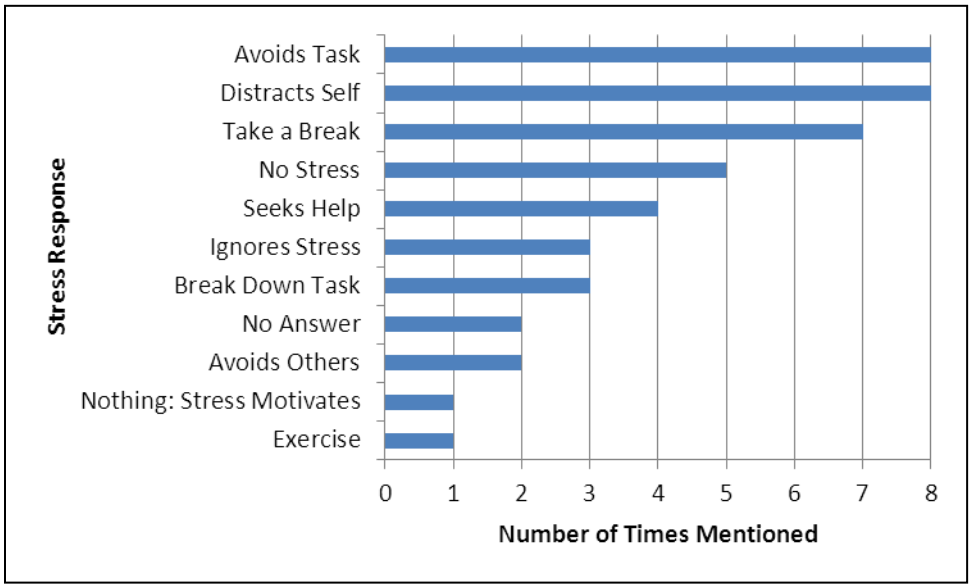

Figure 16: Students' responses to stress-inducing writing assignments. As expected, most students said they deal with stress by avoiding the assignment and procrastinating; by distracting themselves from the stress with music, TV, or the Internet, for example; and by taking a break from the assignment. Several students also mentioned that they do not experience stress when given a writing assignment.

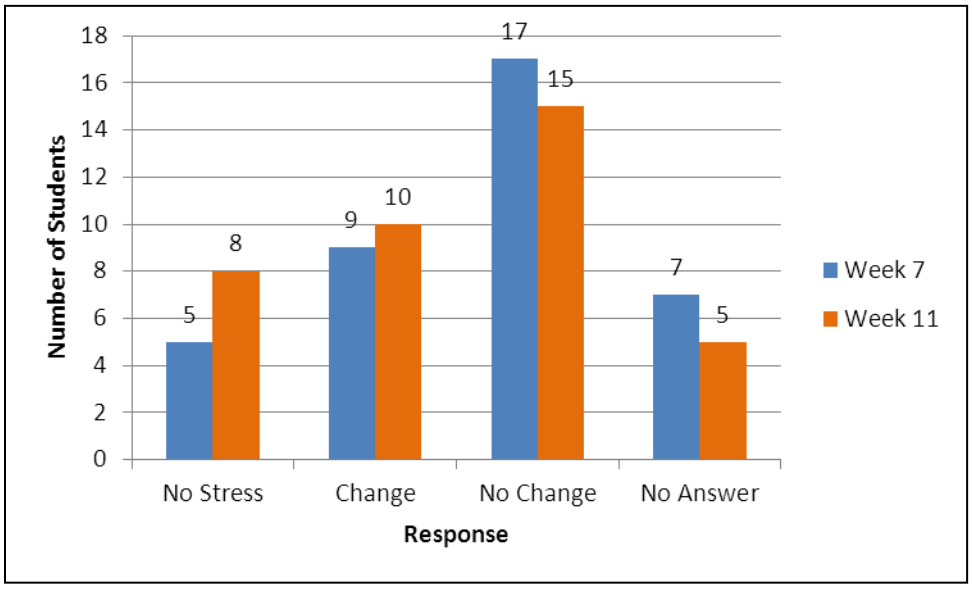

Figure 17: Students' perceptions of change in stress response over time. Most students claimed to experience no change throughout the study, though more students said in Week 11 than in Week 7 that they experience no stress when faced with a writing assignment. Because of these seeming inconsistencies, these results are somewhat unreliable.

Perhaps more enlightening than numbers are the comments the students made about their experiences with stress, as students' own words provide detail and voice that do not lend themselves to graphic representation. Table 3 provides a sample of the students' responses, representing both those who did perceive a change in their stress response and those who did not (because either stress was not an issue or the meditation did not help them to manage it). The affirmative responses tend to be more specific than the negative responses, a difference that is reasonable because a lack of change due to a lack of stress requires no explanation, and a lack of change despite the presence of stress likely means that the student does not see a connection between the practice and stress on which he or she could expand.

Experience with Meditation

Another series of questions in the Week 3 survey pertained to students' previous experiences with meditation, which are represented in Figure 18. Twenty-one of the 38 students, or 55 percent of the sample, said they had no prior experience with meditation. Nine students, or 24 percent, did have prior experience with meditation as a result of influences like high-school classes, yoga classes, and family. Six students, or 16 percent, did not seem to understand what was meant by "meditation" as concentration; these students explained their previous experience as prayer (active, not contemplative), reflection, and chiropractic. Two students, or 5 percent, were not present on the day students completed the Week 3 survey. This information about prior experience provides insight about potentially existing assumptions about or attitudes toward meditation, which may have influenced the practice and/or attitudes of those with prior experience toward the in-class mindfulness practice.

Table 3

Students' Explanations of Change (or No Change) in Their Stress Response

The quoted statements are representative of the comments received from the class in regard to changes (or no changes) in their stress response as a perceived result of the mindfulness practice.

Statements About Change
"…maybe a little bit but I am still very self conscious about my writing. Because of mindfulness, I read the whole prompt entirely before freaking out."
"I have felt a reduce in the pressure to write, and also I don't see a difficult piece of writing now as a challenge but a goal to perform well now that the stress is gone. I used to freeze and have major writers block."
"My stress response has decreased greatly when faced with difficult writing assignments. I no longer see the paper as a 'death sentence' – I view it more along the lines of a challenge that I know I will conqure."
"I try to just take a deep breath and focus on whats happening NOW rather than later or earlier in the day."
"Most definitely [the response has changed]. If ever I am stressed, writing becomes such a difficult task. Whenever I am at that point I stop and take a break and try to relax my mind. Once I finish I am able to continue writing and actually write better."
Statements About a Lack of Change
"I do get stressed when writing something I don't know what to do on it, but I don't think the activity has helped me with that."
"I have never had stress issues with writing."
"I still feel the same writing as I always did."
"I have never really related my homework stress and the mindfulness practice."
"I am stressed always. The mindfulness practice doesn't change that."

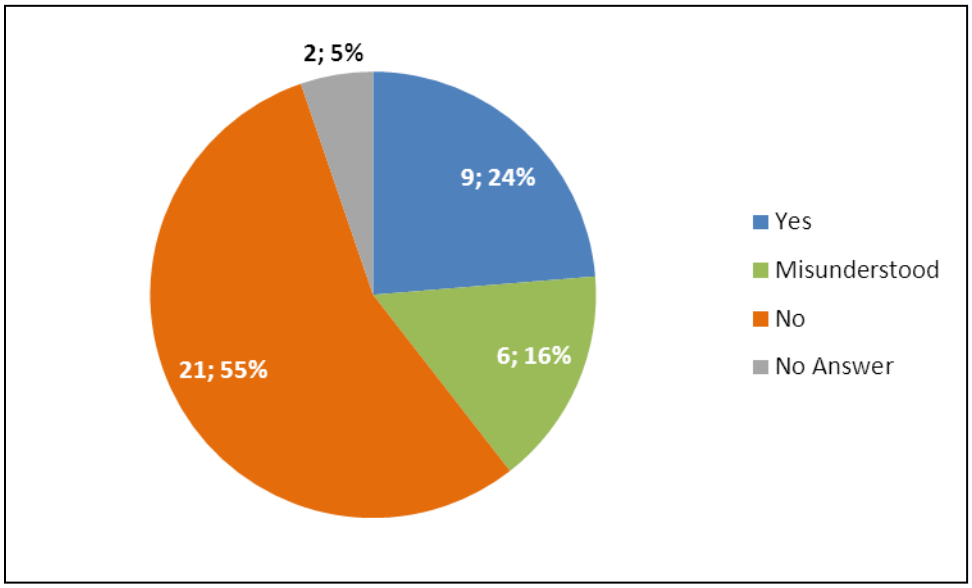

Figure 18: Number of students with prior meditation experience. Although this chart is fairly straightforward, one category—"Misunderstood"—merits explanation. The responses in this category indicate that these students misunderstood the definition of "meditation" as concentration as opposed to dialogue (or an action wholly unrelated).

Attitudes Toward In-Class Mindfulness Practice

In both Weeks 7 and 11, students were asked how helpful they found our in-class mindfulness practice and were given three options from which to choose: not at all helpful, somewhat helpful, and very helpful. If they found the practice at all helpful, they were asked to explain their response, indicating how the practice was helping them and whether it was helping them in and/or out of our class. Generally, more students found the practice at least somewhat helpful, although two students' opinions changed by Week 11. Figure 19 shows their responses to the multiple choice question, and Table 4 provides a sampling of the most articulate rationales for this question.

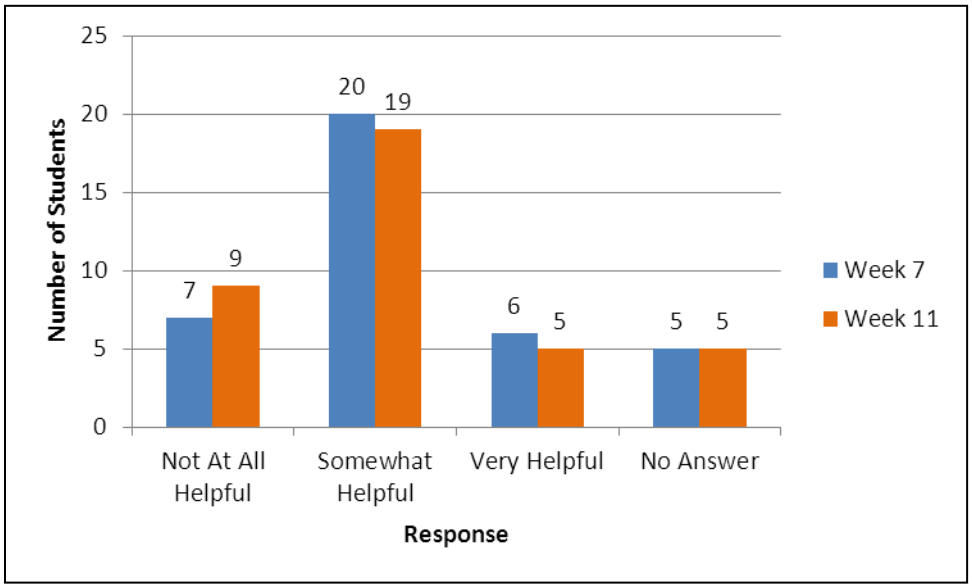

Figure 19: Students' attitudes toward in-class mindfulness practice. Some students did not find the practice helpful, though most students felt they received some benefit from it. Over time, a few people who had at one time found the practice helpful no longer did; their comments suggest that the repetition of the practice in every class at some point began diminishing returns.

Most common among the responses were references to focus, calmness, and the ability to think more clearly and effectively. Some students, however, unequivocally expressed frustration with the practice, stating that it yielded no benefits for them and detracted from class time that they felt could be spent in more lucrative ways. (A common theme, however, was the relativistic idea that perhaps the practice worked for others but not for them.) Even some of those who found the practice beneficial mentioned that the repetition of it every class session seemed unnecessary. One person expressed a desire to learn other mindfulness practices that might work even more effectively than mindful breathing. Several students, both those who liked and those who disliked the practice, said that at times it made them feel tired and unable to focus, though most of them attributed the tiredness to a lack of sleep over the weekend (they took the surveys and

Table 4

Students' Rationales for Attitudes Toward Mindfulness Practice

On the surveys, students explained their opinions about the mindfulness practice to varying degrees of specificity; this table highlights the most robust.

Very Helpful
"I feel less pressure as I'm writing which has never happened before during forced writing practice [in reference to our weekly timed writing sessions]. Also, over the last few weeks my overall stress levels have dropped after the mindfullness practice and I seem to get more done on those days."
"I think it's helping me both inside and outside of class. I have a hard time focusing and it helps me start out class focused and on task. When outside of class I feel like I can stop and direct my focus to the task I'm on. I feel in control of my focus."
"From my experience mindfulness practice does work and it has helped me do better while writing for long periods of time. I believe it helps one relax and only lets good ideas flow after one finishes the exercise."
Somewhat Helpful
"I find mindfulness helps me get a littler more settled into learning mode and helps me forget about what is happening in my personal life while I am in class."
"Depending on the day or what I have going on…It allows me to clear my mind and be at peace and allows me to focus in on the task at hand. It also allows me to think more clearly and write more effectively…I found the exercise to be very helpful in the beginning, but as time went on it became repetition…"
"It calms my nerves, it makes me feel like things are slowed down and I feel able to process thing better and differently…It helped in the beginning but afterwards it has become a distraction—my trying to focus gets knocked because I'm looking for the same peace and serenity the first time."
Not At All Helpful
"I never get anything out of the practices; they seem like a waste of time that could be used to learn rhetoric methods and effects. I, easily, have used more of the time thinking about what I have to do than whatever it is I'm supposed to, closely followed by thinking of the shear amount of tasks I need to do, and, equally, how much time it feel like I'm losing in these practices."

Table continued on next page.

Table 4 cont.

"I don't believe forcing your mind to relax brings about clarity and focus. I've found it much more beneficial when it comes naturally after doing an activity or sport you enjoy. For me, whenever I came home from baseball practice or a round of golf, I found myself to be most alert and stress free."
"I'm still unable to successfully complete a practice without getting frustrated with myself or giving up. I have not noticed a change in my academic standing, positive or negative. I don't think I am mentally or physically still enough for the practice to make an impact on me."

wrote the in-class essays on Mondays). In both the Weeks 7 and 11 surveys, the students mentioned a variety of other benefits and drawbacks of the practice, which Figure 20 categorizes and quantifies.

Effects of Mindfulness Practice on Academic Improvement

Students were also asked whether they thought that regular mindfulness practice may bring about academic improvement. They were given five options: strongly disagree, disagree, neutral, agree, and strongly agree. In their Week 3 responses, all the responses were either neutral (due to a lack of experience with meditation, particularly in an academic setting) or agree or strongly agree (based on students' speculation). By Week 7, 16 students still agreed that the practice could affect academic achievement, but 6 either disagreed or strongly disagreed. By Week 11, only 12 agreed or strongly agreed that the practice may be associated with academic improvement, and 15 students were neutral. Six still disagreed or strongly disagreed with the association. The students' responses in both Weeks 7 and 11 are shown in Figure 21 for comparison.

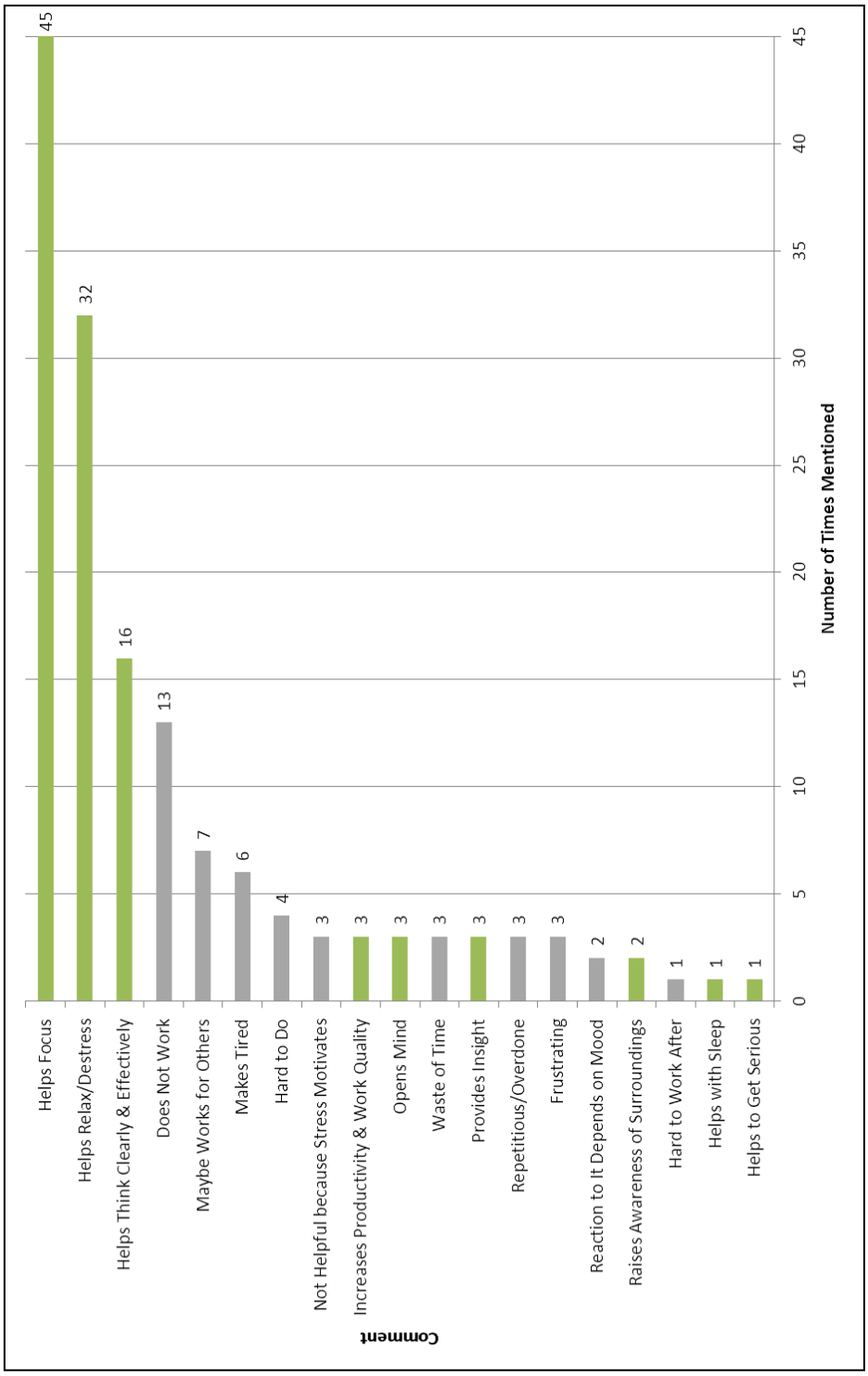

Figure 20: Students' comments about the in-class mindfulness practice. This chart includes data from the Weeks 7 and 11 surveys only.

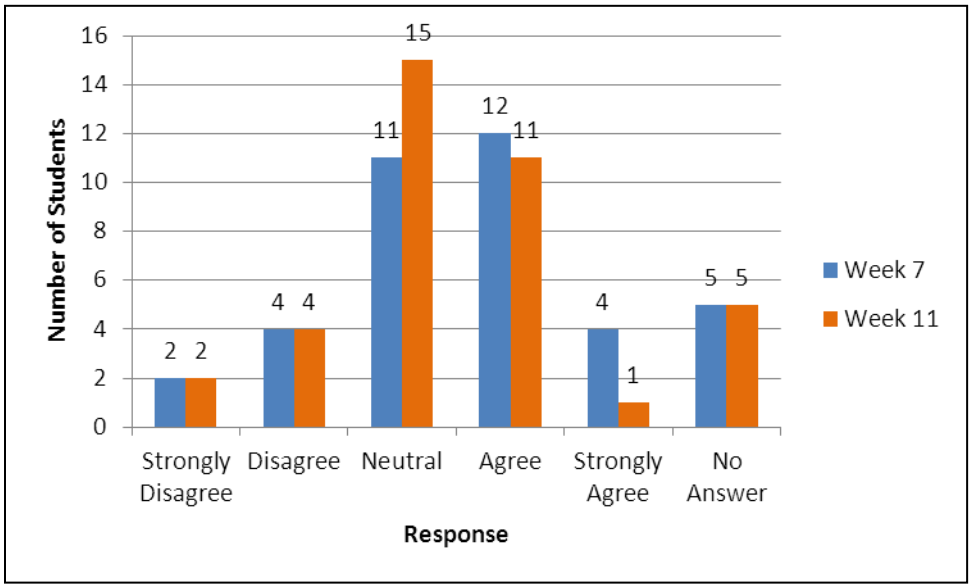

Figure 21: Students' beliefs that mindfulness practice may affect academics. By Week 7, students had completed four weeks of practice on which to base their opinions. In Week 7, sixteen students agreed or strongly agreed that the practice could facilitate academic improvement, but by Week 11, four of those students had become neutral in their stance.

Use of the Mindfulness Practice Outside of Class

To find out whether students thought the practice beneficial enough to use on their own, I asked them to provide details about whether, when, and how they used the practice for other purposes. As shown in Figure 22, the majority of the students—23 (61 percent) in Week 7, and 25 (66 percent) in Week 11—did not use the practice outside of our class. Those who did, however, did so for a variety of reasons: to re-experience "the…peaceful and at ease feeling I got the first time (in class)," "before I study and during late hours of the night while on the verge of a panic attack because I feel overworked," and while working on assignments for our class and a communications class. A few students even used the practice as a "sleep remedy" on nights when they had a lot on their minds." These results show that transfer outside of our classroom was

minimal (21 percent in Week 7, and 16 percent in Week 11) and that when students did use it outside our classroom, they sometimes used it for reasons that I did not intend (that is, falling asleep instead of cultivating focus and awareness).

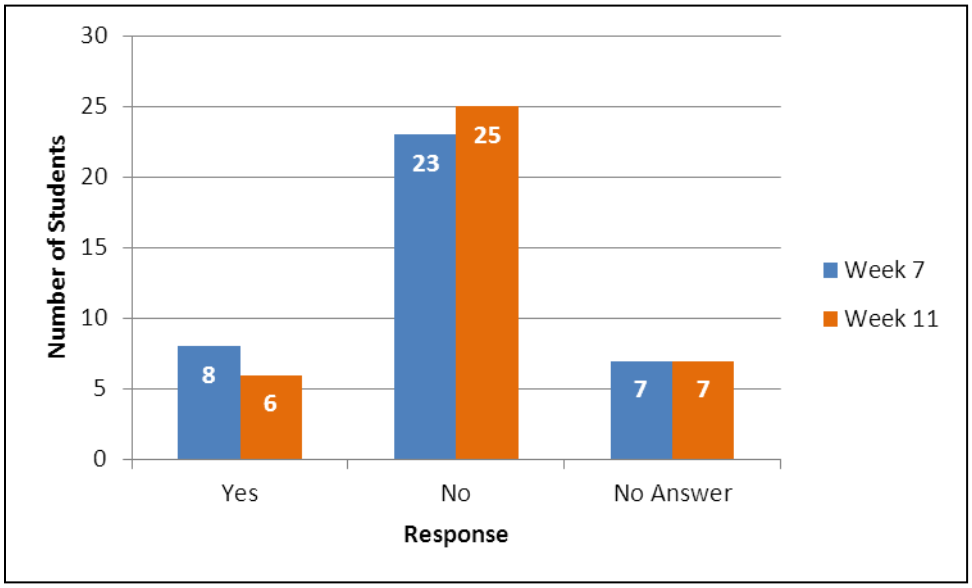

Figure 22: Students' use of the practice outside of class. The majority of the students did not use the practice outside our class, and those who did, did so for varying reasons, including to relieve stress and to fall asleep.

Reflective Writing Samples

During Weeks 4, 6, 8, and 10, students wrote reflective essays for 15 minutes immediately following the Monday mindfulness practice. These essays were intended to supplement the short-answer surveys and provide another means of longitudinal analysis of students' experiences with the meditation. The essays proved insightful; in them, students often mentioned benefits or revealed insights that they did not account for in the surveys. Because students wrote the reflections in response to the same prompt each time, their responses were at times repetitive; however, this recurring reflection process also revealed patterns of insights and

experiences with the meditation that might have otherwise gone unnoticed. Most notably, the reflections showed the commonality of students' experiences and patterns in students' responses to those experiences that seem to have affected their perceptions of the practice and its utility.

Some themes emerged in the reflections: tiredness, illness, and attention or anxiety disorders (six students said they struggle with such a disorder). As a result, students often described common experiences—typically revolving around the difficulty of clearing the mind of thoughts and focusing on the breath—that some thought were anomalous. For example, one student wrote, "It was extremely difficult to keep my mind focused on trying to clear my thoughts. I felt that it was so difficult because I have a lot on my mind and I am extremely tired.… I feel like the difficulties I am having during this, no one else is having." Other students shared similar experiences, evidenced by the excerpts in Table 5, all from different students. As expected, students' responses to these challenges seem to be strongly connected to their perceptions of the practice.

Table 5

Students' Common Struggles with the Mindfulness Practice

Many students, both those who found the practice helpful and those who did not , discussed common struggles. Some students thought their challenges were unique (or uniquely difficult). The most common struggles are referred to in the following excerpts from students' biweekly reflective essays.

Assessment of Own Mind
"During the first mindfulness exercise I had a hard time trying to stay concentrated. I am not the one to stay focused on just one thing for a long period of time. I think that is what makes me unique is that I am always thinking of different things to do and how to make things better. Doing this exercise has shown me a little bit about myself and how my mind works.... my mind tends to wander around a lot, so trying to stay focused isn't the easiest for me to do."
"I want to highlight how I think, in my perspective, just to help clarify my troubles. hopefully you have heard of the word association game; when I think of one thing i jump to the next topic and then connect that to something else. so, in this case I was thinking about my breathing, then it when to holding your breath over train tracks for good luck, then I remembered this story I heard fifth grade about a girl who wonders on train tracks for the rest of eternity looking for something she will never find. this though some how lead to a thought about what I will do for the rest of eternity, what is my propose and questions i do not have the answer to. this train of thought happened within a minutes time."
"Myself and mindfulness don't always get along with eachother…. I am not a very calm individual i always have to be doing some sort of activity. i have noticed as i have grown older that i often tap my legs when i am not doing another activity. it has become more rapid as i have grown and happens more often then not….It's hard to explain the feeling but during the activity i just felt somthing deep inside of me that was frustrated with the idea of sitting still and trying to shut my body down; its like my body wouldnt allow me to feel calm and focused no matter how hard i tried."
"Im the type of person that moves fast i need to do everything at once well at least try to and this practice might help me slow down a little to where i can get a complete thought out insead of half or not all of it."
"during the focuseing exercise, my mind kepting running away to different places. i think that was one issue why i don't think todays exercise helped me….from today's exercise i came to a conclusion that my mind cannot focus on one thing for a long period of time."

Table continued on next page.

Table 5 cont.

Explanations of the Meditation Experience
"Today during mindfullness, I felt as though it made me more uncomfortable with each passing moment of it more than I was already uncomfortable before class. At first, I felt relaxed and found it easy to clear my mind and focus soley on my breathing but after about 1/4 of the excersize was complete, I found it easier to focus on negitive thoughts because I was so focused on focusing. While experiencing this strange paradox, I started to feel very physically and mentally uncomfortable. My spine felt cold and prickly and my head felt like it was too heavy to hold. I started moving to try to see if it was just an itch or I needed to crack something because trying to let it go was not working, yet the moving only made it worse. "
"Today's practice was a rather difficult one. I say this because I felt like everything that could go wrong did go wrong. I started out very relaxed and with basically nothing to worry about which does not happen much. However, as the time went by I found it very difficult to focus. It started out with my beard itching as funny as that sounds I could not concentrate because I felt like there was this need to itch it however I could not because the instructions didn't say so. I thought this would go away however it did not.... The second reason today's practice went horrible for me was because suddenly during the relaxation time my head started to feel heavy perhaps because of my lack of sleep the night before, but I really wonder why I was normally fine this morning and it all of the sudden hit me at twelve in the afternoon.... Along with my head feeling heavy I got a minor headache which also found me out of guard."
"I found today's reflection very difficult. The whole time I was sitting still in my chair I wanted to internally freak out. When I sit up straight, my diaphragm, or whatever organs are below my ribcage, sit very uncomfortably in my abdomen. That discomfort makes focusing on the breathing in my lungs very difficult, seeing as how every time I breathe in I find myself wanting to slouch in my chair to relieve the pain. I noticed last class that if I tap my toes on the floor, I can distract myself from the discomfort, but then you tell me to focus on the breath and it cycles right back."
"There always seems to be something that pops up in my head that distracts me and takes me away from the exercise. I tried to correct this but it was just too difficult for me and my mind continued to wander throughout the exercise. All in all I found it easier to sit still today than any other day before but I still could not control my mind. I feel as if I have the physical aspect of this exercise down it's just the mental part I feel as if still needs work...."
Explanations of the Meditation Experience
"Today's practice was trying, unlike the first time I did it. I've come to class and have been doing this for maybe two weeks now and the first time was amazing! So much so that I began to do the practice in my dorm before each class, homework , and even studying. Each time I felt (somewhat) a sense of releif but I also took notice to sounds (I probably wouldn't notice otherwise). My attention gets stirred more so, I believe, because I want that feeling I got the first time. My wanting of that peace and serenity affects my practice. I become bothered by the sounds of the fan blowing, faucet dripping, or even the wind hitting my window. My brain goes into this alert mode and I'm immediately bothered and can hardly focus on my breaths any longer….The most I took out of today's practice was that I, again, failed at getting the same feeling of peace that I got out of this exercise as the first time. That's actually what really grinds my gears."

Negative Perceptions of Mindfulness Practice

The major difference between those who found the practice beneficial and those who did not seems to be the individuals' methods of dealing with the challenges they faced and the realizations they had both during and immediately after the five-minute practice. For the most part, those who strongly disliked the practice did not find productive ways to cope with the challenges that arose during the practice; they tended to think their struggles were atypical, and many of them admittedly stopped doing the practice, generalizing that it did not work for them. One student attributed his mind-wandering to the practice itself: "It has made me lose focus and for my mind to wander and think about everything else that is not the topic at hand.... I just don't see it, I just don't understand it, and I just don't see how this could help at any time in my life." Another student said the practice failed to work on a particular day, though she admittedly did not do it:

> Today, I thought the practice went by very quickly. I wasn't completely focused on it and my mind kept wandering. I didn't find it difficult or easy, since I wasn't really paying attention to it…. I was mostly thinking about other things so my emotions were elsewhere. I don't think the practice had any effect on my writing of this relection. And I don't think there was anything in particular that I learned from today practice, other than it is something that you definitly have to focus on for it to have an effect, if any....

Likewise, another student gave up because she had not yet been able to "clear [her] thoughts":

> I honestly did not even attempt to do the practice today. During the practice, I was thinking about things that happened this past weekend. I didn't do the practice today because it never helps me and I don't understand the purpose of it and I don't find the practice useful. Sometimes I think it's just impossible for me to stop thinking about things. If I attempted to do today's practice, it probably would've made me snap out of my thoughts and more calm. I think my mind is still on the weekend and all the events that took place. I think I'm just in my "it's Monday attitude" and I'm not ready to get back into schoolwork.

Why these students dismissed the practice for its challenges is unclear, though what is clear is that the challenges were too great for some students to feel they could successfully work through them.

The challenges also appear to have been too great for some students who said that they did not give up the practice but still did not experience any benefits. One student, for example, dealt with recurring headaches during and after the practice:

> I find the practice difficult all the time not just today in preticular. The difficultness comes in with the sitting the steal and thet head hurting. being told to sit steal has been hard for since i was child and when doing thid practice I become very uncomfortable. The fact im uncomfortable maybe causes the headache because as soon as i open my eyes i feel a relief i just have to wait for the headache to past…. I feel as if i thought after have been doing them for majority of the semester it would get easy but im realizing that it wont and the feeling of discomfort wil continue as long as I keep doing them in class. I truthfully makes my mind wonder why this practice is so hard for me.... I can learn from this practice today that probably this practice isnt right for me that i should find another way to focus because this practice makes me feel trapped in my own body as if im in a box. Being a closterfobic person that feeling is terrible even if its only mind I still feel enclosed.

Although experienced meditators continue to meditate through such distractions, novices like those in these first-year composition classes may not have the stamina or desire to work through challenges that are exceedingly uncomfortable. Other students, especially those who deal with ADD or ADHD, may also miss out on the benefits of meditation if the practice they use takes them beyond an acceptable level of challenge and comfort, as evidenced by one such student's reflection:

> In writing this reflection today I feel that this was a failure and that it did not really work for me at all. My mind is still wandering all around thinking of music, friends and video games etc.... This might only work for me though because of ADHD…. I still have a hard time working on papers and trying to concentrate on what I'm writing. I try the exercise every day before a giant test or paper and still nothing. Still the same old brain that is going around everywhere at 300 miles per second.

Such responses require consideration and the adaptation of mindfulness practices if the practices are to benefit all students, including those who experience challenges beyond the norm.

Although accommodation for those who struggle enormously with meditation seems justified, we must keep in mind when making such accommodations to consider that perceptions change as an individual's practice evolves. Perceptions also are often inconsistent, those of newly independent young adults perhaps especially so. In this study, such inconsistency was characteristic of some students' reflections, particularly by those who claimed at the end of the semester that the practice was not at all helpful. In their reflective essays, many of these students demonstrated shifts that they did not account for in their valuations of the practice in the surveys and in later reflective essays. One such student wrote in Week 4:

> I really enjoyed the mindfulness practice that we did today…. During the practice I noticed something pretty weird. I came into class with a stomach ache and while doing the mindfulness practice and thinking only about my breath, my stomach ache seemed to go away. After the practice was over however, my stomach ache returned. I think that is very interesting and I'm not sure why that happened.

This reflection reveals enjoyment of the practice and an important insight—that the mind and the body are inextricably connected, so our focus affects our experience—that the student did not seem to understand or retain. In Week 6, she explained her growing boredom with and aversion to the practice:

> When we started doing the mindfulness practices I liked them and had an open mind to how they would help me as a writer. As we've been going on doing them everyday I find myself liking them a lot less. For me, it is an easy practice and I am able to stay focused on it, however I find that I don't want to and I just let my mind wander more than I'm supposed to for the practice.... I really do not know why I've taken such a sudden disliking towards this practice; it may be because we keep doing the same one over and over again and I am just getting tired or bored with it, perhaps if we did a different type of mindfulness practice I may be able to focus my mind more...

In this reflection, the student implies that her ability to focus is connected to her enjoyment of the practice, which indicates a lack of awareness that ability and enjoyment are different aspects of experience, and though ability can affect enjoyment, enjoyment does not affect ability but, rather, motivation. What seems problematic, therefore, is not the *effectiveness* of the practice but the student's desire to complete it.

This student's Week 8 reflection, however, returns to a positive perspective. The writing reveals that the student began to take responsibility for the practice, noticing that her expectations of and lack of preparation for the practice were shaping her perspective and attitude toward it:

> This journal entry is completely different from the last few that I've written-a lot less negative. I think the reason that I didn't enjoy the mindfulness practices the last few weeks is because I was coming to class slightly exhausted and felt somewhat unprepared because of my tiredness…. I still am not sure how I feel about the practice as a helping tool for writing, although today has definitely changed my previous thoughts on meditation all together. I do think that it can have an effect on performance overall, just not in the way I expected at first. I thought that the practice would somehow make my mind and thinking more clear and all my thoughts would just come out onto the paper. Now I see it as more of something that can help you block out distractions and think more clearly all together for a moment.

Despite the realization of the usefulness of the practice for blocking distractions (like boredom, which can be considered a distraction), this realization did not seem to incubate as we continued the practice. This student's last reflection for this study, as well as her end-of-course reflection, again shifts, ultimately dismissing the practice as unbeneficial for writing:

> Overall, though, I did not feel like it had any benefit at all with my writing. I still feel that way; and I also still feel that it may have some benefits, however I did not experience any….For me, it seemed like a waste of time. I did not see any change in my writing or writing process as a result of the mindfulness practices. Overall, I didn't feel as if they were worth our class time and that we could have been doing other things, such as asking questions, that would have helped our writing and writing processes more."

Other students experienced similar oscillations between positive and negative valuations of the mindfulness practice, basing these valuations largely on their enjoyment of the practice or perceived success in completing it on any particular day. What resulted in the dismissal of mindfulness practice as a tool for writing *did comprise* moments of perceived benefits that were overshadowed by the negative. As a result, these negative perspectives of the practice at large must be considered as potentially dynamic yet nevertheless important indicators of a need for critical holistic reflection that more accurately accounts for previous experiences or variations in practice.

Positive Perceptions of Mindfulness Practice

Those students who found the practice beneficial used what they noticed and learned from it to modify their behaviors, adjusting their approaches to the practice both before and during it. For example, of the students who found the practice valuable, those who realized that tiredness was causing them distress during the practice said they made sure they got enough rest prior to coming to class. One student became more flexible in her practice, explaining, "In today's practice I spent a lot of the time actually just 'being in the here and now' which in itself was a new experience…. I think what was different was that I tried less to not think about anything but to just catalog what was happening and trying not to think to much." Another student, who struggled with feeling so relaxed after the practice that she had a hard time focusing on writing, realized that she needed to "push through distractions and keep working even when…relaxed." Her later reflection demonstrates progression in her ability to focus, which seems particularly noteworthy because she claimed to have attention deficit disorder:

> It was difficult at some points to fight the urge to move, but focusing just on the breath made it more tolerable. Instead of moving, like I usually would, I would think of my breathing and resist the urge to get distracted. I enjoyed todays practice more then I have in the past.... Now, I know how I can beatifically relax, but still work immediately after. I no longer get out of the "school mode" but instead can relax while still in it.

Other students who felt they benefitted revealed similar coping methods with challenges faced during the practice and subsequent writing period. They used the negative experiences to identify what needed to change, noting a need to be responsible for their experiences rather than expecting the practice itself to yield benefits without requiring much of them. Another student explained his adjustment as follows:

> Todays mindfulness practice was definatly not very effective. I have a little bit of a cold, so I was more concentrated on not sniffeling the whole time than anything else. I also have the assignment on my mind that isn't working out that well so that also keeps on distracting me from giving my full attetion to the mindfulness practice.... Even though my reaction is a little negative towards the practice today, that doesn't mean I can't learn from it. What I will have to do next time when I am in conflict with something, is learn how to clear my head and keep my emotions in check so they don't get me distacted.... What I also learn from today is how I can become more prepared for class so that I am not as tempted to be distracted.... It is more than just the physical part, our mind is what creates all our decisions, so in order to make clear, solid decisions, we have to have a clear mindset. Not blank, but clear…. Because today was a little bit tougher day, in the end I think it actually helped me…

This student's later reflection demonstrates the application of these insights:

> Last time, I couldn't focus well because I kept thinking about my paper that was due. What I did to change this is that I came to class focused on the present (now) and not worried about anything in the future or past. What I also did this time that helped me focus better is if I have a cold or a stuffed-up nose, I just need to not focus on my nose, but focus on a different part of my body such as my eyes. This allows me to tune out these distractions and focus more on the activity and the purpose of it.

Despite circumstances that made the practice difficult and frustrating, these students realized the benefits by learning from their challenges and adapting their approaches accordingly.

Experienced meditators know that difficulty is an inevitable part of the practice and that the practice is intended to be a tool for training the mind, not fodder for judging the quality of the

experience (that is, whether the experience was peaceful and/or pleasant). Although only one of the students in this study was a well-practiced meditator, many of the students accepted the presence of difficulties and used the practice as a tool to work through them. They did not require a lecture on the theory behind the practice, nor did they require an explanation of the many challenges that are common and inevitable. They learned from the practice itself and from the reminders during the guided practice to return the attention to the breath if it had wandered. They began to realize, perhaps without even being aware of it, their minds' propensity toward distraction, and they began to exercise control over their focus. These changes are demonstrated in explanations like the following one:

> Last night I found myself sitting on my floor in my dorm room breathing in and out and trying to clear my mind…. These focusing exercises introduced me into thinking about my mind and how my own reactions and thoughts affect me. Not too many times in my life have I really looked introspectively, and thanks to this class I do.

Another student described the ease with which he was able to focus later in the semester:

> From todays practice i did feel much more relaxed than i had with previous practice. in my mind i felt comfotable, i could hear the teachers words, and i could notice that she was speaking and hear what she was saying, but it was like happening naturaly if that makes sence. she was telling me what to do and it's almost as if whatever she said my mind automatically did it without myself having to tell or force my body to do what she said. i was able to put all other distractions to the side such as other peoples breathing, people moving, etc. This was king of a first for me, i get distracted really easily and the fact that i stayed focused in todays activity really shows that i am progressing in the whole mindfulness idea before writing.

Still another student, a skeptic, noticed that the peace he found through the practice was beneficial to his writing process, even if his writing itself did not change:

> Over the course of time we have spent on this excercise, I find myself improving - if only slightly. I am no longer about to nod off in the middle of our group meditation, yet I still find it very calming. After focusing on a single, mundane action, it's easier to let all my worries and stresses about the rest of the day leave me and only focus on this class.... If my work is the same regardless, then it would still be useful to have this inner peace and

> focus because I can be easily distracted after I start writing…. A part of me still thinks it is a waste of class time, but another, growing part is starting to see some merit to it."

One student seemed particularly enthusiastic about his experience, his enthusiasm supported by an explicit claim to authenticity:

> One of the first noticable differences after the exercise, was that I am a lot calmer and in a clearer state of mind. As I write this essay, my thoughts are coming through so much cleaner without all the other distrought thoughts in mind. It is almost like my brain went through a vaccumm and only is processing all the important information. Not only are my thoughts clearer, but I am not distracted by the outside world. I am a very talkative person and love to be on my phone, but after the exercise I am so much more focused on what I am told to do in this class. I am not just stating this because this is what I think the response should say; this is how I actually feel. I would not shy away from saying this exercise didn't work if it didn't.... This my MY opinion, not something I made up best fit for the teacher. This is me.

All these reflections come from different students, and all highlight slightly different takeaways from the practice. Like the student who clarified that all he said was true, the participants all seemed to be honest in their responses, as none of them neglected to mention at least one challenge or frustration with the practice. Because perceptions shape behaviors, these reflections are an important means of assessing the merit of our in-class mindfulness practice.

In addition to perceived benefits that many students described, some students gained compelling insights. These insights, some of which are listed in Table 6, may provide the foundation for more productive approaches to writing assignments and to class sessions. Generally, the insights pertained to flexibility, capability, and persistence, though one demonstrated a shift toward a more other-centered disposition.

Table 6

Students' Insights Gained from the Mindfulness Practice

By the end of the study, some of the students had gained insights about their minds and about their interactions with themselves, with their environments, and with others.

"I think that when things are going on in the class room around me, I am aware of them and my mind starts to wonder more then it should. I feel that today's practice helped me realize alot. I think that it helped me notice how quickly the little things get to me and can distract me.... The benefits this practice has provided me with is a sense of inner awareness and patience."
"I was a bit angry at today's practice because usually there is complete silence. Not being able to completely relax definitely made me a little grouchy. Overall, however, I did enjoy the calmness of the exercise as I always do. The one thing I can learn from today's exercise is that you can not always control the factors around you. In order to become successful you have to find a way to either ignore or attempt to avoid any obstacle that might cross your path...."
"At first I was a bit resistant to actualy relaxing and trying to focus but it got easier the longer it went on….After I was able to focus I was actually suprised at how much I coulod focus and relax doing something like that.... I am actually suprised at how focused I felt and how I was only thinking about the writing and not anything else but the assignmen given...."
"Today was interesting because even though it was really hard to focus at first I just kept trying to keep focus on our activity and after a while it became easier to focus and I could actually direct my focus to the pratice.... I should just remember that if I keep redirecting my focus back on my assignment I will eventually maintain a direct focus...."
"It's interesting how you can switch your focus from one thing to another.... Just how we switch focus from our sensations of touch to awareness of breathing, is something really interesting. I like how we can control our focus and quickly switch and point our focus directly on something else without a lot of outside thoughts and ideas."
"today made me realize somthing; i realized that it isn'f fair to the teacher that i am stressed. everyone in the class including her have things on their mind, and it isn't fair to her to not let myself reach mindfulness, so i am making it my goal next class to focus as hard as i can on my objective and eventualy calm myself and reach mindfulness regardless of what is going on around me or inside my mind."
"Classrooms have a kind of tension to them. I worry about my appearance, seeming normal, and not standing out. I take in information and often mindlessly judge it for value. When I was sitting still today, I could slow down and notice those judging thoughts about myself and class that I have a hard time noticing otherwise. I noticed other people put their heads down while I sat up straight in my normal meditation posture. Wouldn't I stand out and probably seem like I was full of myself for having done this before? Sitting straight gives me that feeling of appearing arrogant. I noticed this thought sitting there, and I could look at it now instead of letting it run wild without my notice."

Evaluative Writing Samples

To provide material for assessment of rhetorical sensitivity and potential connections to mindfulness practice, students wrote evaluative essays on Monday of Weeks 5, 7, 9, and 11 for 15 minutes immediately following the practice. Students were given a short persuasive article from the school or local newspaper, which they would read and then evaluate for rhetorical effectiveness. Because the data collected about students' levels of writing apprehension and mindfulness as well as their experiences with and attitudes toward the practice were so robust, and because the effects of meditation on written products cannot be adequately assessed without a control with which to compare them, I decided to forgo an in-depth analysis of the evaluative essays at this time. However, a preliminary review of the essays, supported by students' comments in their reflective essays, suggests that organization and transitions may be the most likely aspects of writing to be affected by mindfulness practice. Other aspects for consideration include the cogency as well as depth of content, particularly in regard to explanations and the use of examples. Most students claimed to think more clearly as a result of the practice, and clear thinking, in theory, should engender attentiveness to elaboration and relevance. Aspects that could be ignored in such a study include sentence mechanics and usage, as students' writing in this study indicated a disregard for details during timed writing. Such a disregard may, however, be the result of my teaching; I told students that their writing would be evaluated based on quality, but I emphasized throughout the course that quality is most strongly influenced by content and organization, though style, grammar, spelling, and punctuation are certainly important.

Observations

While students composed their reflective and evaluative essays each Monday during the eight-week study, I observed their body language, taking notes on the computer at the front of the room. Students worked at computers around the perimeter of the room in a U-shaped formation, so I could see all the students and the monitors fairly easily. To ensure that I could see subtler movements, I walked around the room from time to time, being careful to keep a distance of several feet from students as they worked so I did not impede their focus.

Generally, my observations were the same each week. I noticed a lot of movement, particularly toe-tapping, knee-shaking and -swinging, leg-crossing, chair-swiveling, and hair-twirling. At times, students rested their heads on their hands or—in one case during Week 8—on the desk in front of the keyboard. Interestingly, the movements tended to last no more than a couple of minutes per person, and I wondered how these movements were connected to students' cognitive processing and their writing. After the study was complete, I compared my observation notes to students' reflections, and their content seemed strongly connected. On the days that I noticed students moving in these repetitive ways, their reflective essays mentioned struggles noticeably more intense than on days when their behavior was calm. Not surprisingly, the number of students making such movements was greatest in Week 8, the week just prior to midterms (or, for some, the week of midterms). The student who struggled with headaches after the practices (refer to the earlier section, "Negative perceptions of mindfulness practice") moved almost constantly during every writing session, alternating bouncing legs, stopping only when reading, and resuming while writing.

During Week 8, a reflection week, I noticed that two students had a few browser tabs open; one student finished her reflection ten minutes into the writing period, after which she checked her grades and wrote an e-mail, and another student was looking at a celebrity website but promptly switched back to her in-progress journal entry when I walked behind her. The reflections these two students wrote that week both mentioned having a tremendous amount of stress that week and difficulty with the mindfulness practice.

As expected, students' body language generally revealed difficulties in focusing and relaxing. One student, however, showed no association between body language and reflection, as his toe-tapping occurred on a day when he claimed to really struggle with the practice as well as on a day that he seemed to have the most success with it. Although I did not conduct an in-depth analysis of the evaluative essays, a cursory review of them yielded no overt connections between students' body language and essay quality. An in-depth comparison, however, might provide such insights.

Interviews

At the end of the semester, I invited six students to talk with me in one-on-one interviews to learn more about their experiences and the reasons for their opinions about our in-class mindfulness practice. I had planned to conduct these interviews during Week 12, but my schedule required that I push them back a few weeks. Perhaps as a result of this finals-week timing, only three students responded and agreed to my request. Two of these students found the practice unbeneficial, one far more than the other; the third student found the practice highly beneficial. The discussions that ensued are summarized in the following sections.

Benjamin

Although his reflections suggest otherwise, Benjamin explained in our interview that he "wouldn't say [our in-class mindfulness practice was a] negative experience, [he] just wouldn't say that [he] got a return back from it." "During the whole time I would honestly try and focus on the stuff," he explained, "until the end, and then [decided] I'm just gonna sit this out and try and think about stuff." His reflections reveal intense frustration with the practice, and for the sake of representing them most accurately and effectively, I have provided them in full in Table 7.

During our interview, Benjamin shared that he has been diagnosed with ADHD and started weaning himself off the medication during the study, though he was taking his medication at the beginning. (He did not explain exactly when and why he weaned himself from the medication.) His frustration, by and large, was the result of what he perceived as a practice of *not doing*. "I always felt like I could've and should've been doing something more," he said. "I know this is supposed to help me, but I know I'm supposed to be doing other things. Really sitting and doing absolutely nothing was way different from my normal doing absolutely nothing with playing games, where I'm doing something." As we talked, he developed an insight: "Even when I'm truly not doing anything, I'm still kind of doing stuff. This is insight to you as well as to me," he said.

Table 7

Benjamin's Reflections

Following are all four of Benjamin's biweekly reflection essays, written immediately following our mindfulness practice. (See the earlier "Reflective Writing Samples" section.)

Week	Reflection
4	"Challanges I face while I am attempting to calm my mind vary wildly from none, or negligible, to nigh insurmountable numerous depending on recent or upcoming events. The most common challange is my ADHD--my mind is constantly active, with the few exceptions being sleep, unconsiousness, or earthen-shawl slumber. the few ways to surpass this recurring nusciance is my medication, outside help, or shear willpower.... If I were at home, my parents would be able to guide me whenever I veered of course, but now...my pier of stability has drifted from sight, and my ship has set sail. My masts are forged of pure will and determination, but there are tidal forces of great might crafted of fear, distractions, and more, with paths clear but only when the fog of distraction and doubt are dispelled. The practice wasn't difficult, but I was tired, and unfocused, so my mind wandered but always came back. I don't think the breathing excersice helped, but it didn't hurt."
6	"Today's prectice was definitely more difficult to attempt. It feels as if the constant use of these practices has severely diminished the return of each with every successive one. Along with my college course work increasingly utilizing more of my attention, detracting me from focusinng on these experiences. Today's practice, personally, felt like a waste of time that defferred time away from learning/practicing skills as well as cause slight panic in myself for not using my time to effectively progress with any work that I have to accomplish. These practices don't seem to benefit me other than giving me time to think. Although, since all I can really think about is how much I still have to do, this is not necessarily a good thing."
8	"This practice was unusually difficult for me: I was ired, my left ear hurt throughout the entirety of the event, and, at about halfway through, my entire body felt like it was being frozen by an icy wind, combined with the usual interuptions of my own mind. Today's practice felt more like a misuse of time than other instances, most likely due to the numerous, incessant interuptions I had to endure. This opinion does not help my previous thoughts that these pratices have ever dwindling returns with each use.... Allegedly, this practice was supposed to benefit me in some way...I've got nothing...Sorry. I just don't see much potential in siting still for five minutes-or-so to get an earache and feel cold. Well, other than some sort of petty torture, I guess. Even though studies say "deep, thoughtful reflection" is beneficial; studies haven't studied me."
10	"Today's practice was initially easy and enjoyable, but about halfway through, my heart started racing and I now had to focus on getting this under control using techniques I have learned from the past. Because of this, I could no longer focus on the intended target (the breath) as I had to calm my pulse out of fear of the possible outcomes if it were left unchecked.... The practice was pretty good, relaxing even, until the one overwhelming distraction. Yet, I don't feel as if I gained anything. I became calmer during the first half, then startled, so, overall, about the same as before the event. As a result, I don't beliee this practice affected my ability to write a reflection, but it did provide me with material to create a reflection.

Benjamin's response to assignments—and to rest—is one of avoidance. "I'm a *procrastinator*," he said, listing his many means of distraction, largely videos and video games. "I know how to do stuff to the limit but still give myself enough time to do everything I need to do most of the time," he explained. Thriving on constant mental stimulation, Benjamin explained, "I feel like I do more and better work when I'm slightly under pressure." He also elaborated on his avoidance of mental rest, saying, "Treat your mind like a bad neighborhood, so don't go by yourself. I do that a lot. So far it's been good, so why bother changing?" Clearly, Benjamin has deeply engrained habits and beliefs that prevented him from truly committing himself to the practice. His greatest obstacle to practicing mindfulness seems to be that of a closed mind, followed by what seems to be an inordinately active mind. He did, however, offer a suggestion for teaching mindfulness to students like himself: "Try and make us stay focused on breathing while giving us a blank piece of paper and pencil. Always focus on keeping your mind as clear as possible. Don't try and go for a purpose, just try and go because….That would probably work better for people like me by giving us something to do but not something we need to focus on."

Alissa

Already familiar with meditation because her father practices it regularly, Alissa admitted she really wanted the practice to help her, but she was disappointed. "It wasn't that I didn't like it, because I really like the idea of it. It was very interesting to me, and I was very open and willing. I was frustrated with why it wasn't working," she said. Being able to focus and to let go of self-judgment seems to have been a lifelong struggle for Alissa. "Looking back, ever since I was in kindergarten," she explained, "I've always had a hard time focusing. I would stay in for

recess so many times because that was the teachers' way of getting you to finish the assignment. It was frustrating; I had very little patience with myself as a child."

Our in-class mindfulness practice was a source of much apprehension for her, as she continually worried about the writing she would have to do afterward. "I was stressed out from doing the exercise because I was so scared I was doing it wrong that I went into the writing the same way," she explained. "Did I write enough? Why can't I think of anything more (to write about)? Did I spell everything right"? This apprehension was also a frequent topic of her reflections, the reason I decided to interview her—no one else mentioned anxiousness nearly as much and as consistently as she did. As a result of the practice, she said, she became more keenly aware of her mind's restlessness and of the anxiety that causes her to procrastinate, and she wrote in her last reflection that "this realization has made [her] consider getting tested for ADD/ADHD." "For some reason, forcing myself to focus was almost as hard as focusing," she explained in our interview. "Am I trying too hard; am I not trying hard enough? Maybe that's part of my problem; instead of thinking how and why I'm doing something, I need to just do it." Being overly self-critical seems to be an identifying characteristic for Alissa, and though our practice did not help her to direct her attention away from—and eventually lessen—this criticism, it does seem to have made her more aware of her struggle and its implications so she can begin to find workable solutions.

Javier

In contrast with Benjamin and Alissa, Javier enthusiastically divulged his affinity for the mindfulness practice. The first few times we practiced, however, he was not fully committed to it; he thought it was "a way to chill back and was glad we were doing it," but he did not take it

seriously. By the end of the third practice, he said, “I felt like, I literally felt like my brain was more open to things. I’m usually really slow and I don’t know what to say, and I felt like ideas were coming to me for some reason.” When he realized the practice was affecting him, he began practicing it fervently in class and occasionally outside of class. While working on a psychology paper, he explained, “it was later at night, so I was struggling to begin with. I set my paper [on the table] and sat back like this and was just breathing, for like five minutes, not trying to think about anything.” The meditation, he claimed, helped him to organize his thoughts. “I can open my mind up and delete stuff that wasn’t necessary,” he explained. His Week 4 reflection essay describes his experience metaphorically and in more detail:

> I really liked this practice because in a way I felt like I was a computer that's always on but suddenly I was unplugged for five minutes. The unplugging gave me just another time to reboot and clear up all the files I has saved that weren't being used. This affected my writing because I felt like I had enough space in my brain for all the thoughts I wanted to put on paper. It seemed kind of silly to spend time relaxing before I wrote something instead of planning what I should write but in a way it was the most helpful thing I've ever done for myself.

Once a skeptic, Javier now advocates for the practice in an academic setting. “Overall,” he wrote in his Week 10 reflection, “the thing this practice helps the most with is expanding and diversifying your ideas. I fell like relaxing helps make room for the higher level thinking humans are capable of.”

DISCUSSION

This study provides insights about three areas of concern in composition research that correspond to those in the literature reviewed, with the exception of neurophysiological findings.[1] Overall, this study reveals mixed results on the relationship between in-class mindfulness practice and students' attention, metacognition, and apprehension. Students who claimed to learn from the challenges they faced during the mindfulness practice, and to adapt their attitudes and behaviors accordingly, reported an increased capacity to focus and to observe and regulate their thoughts. Many of them also mentioned feeling relaxed as the result of mentally disengaging from stressful thoughts. Others, however, did not notice or demonstrate these benefits, though their results, as evidenced by their reflective essays, generally corresponded to reports of improper practice (using the time to zone out or to reflect on or plan the day) and/or of frustrated and misguided expectations that wandering thoughts were supposed to vanish. Despite sometimes conflicting and inconclusive results, the benefits reported by students who followed the mindfulness practice as prescribed support my research questions; they demonstrate the potential to impact students' writing process, which may in turn impact their compositions.

[1] A study of the neurophysiological effects of meditation on an individual's writing process would be enlightening but would require equipment that was unavailable for this study.

Attention/Focus

In a synthesis of the most prominent definitions constructed by psychology researchers to conceptualize mindfulness, Chiesa et al. (2011) write:

> The first component of mindfulness is usually referred to as a mental state characterized by full attention to internal and external experiences as they occur in the present moment (Bishop et al., 2004; K. W. Brown & Ryan, 2003; Kabat-Zinn, 1994). The second component is usually described as a particular attitude characterized by non-judgment of, and openness to, current experience (Bishop et al., 2004; K.W. Brown & Ryan, 2003; Kabat-Zinn, 1994), which is supposed to lead to higher levels of exposure to negative stimuli and emotions (Kabat-Zinn et al., 1992) as well as to higher acceptance (Brown & Ryan, 2004; Hayes, 1994) and concurrent reduction of experiential avoidance (Hayes et al., 2004). (p. 451)

Because mindfulness and attention are strongly correlated, a person's ability and/or willingness to pay attention are reflected in his or her state of mindfulness. To get a sense of students' attentive faculties at the beginning and end of the study, I had them complete the Mindful Attention Awareness Scale (MAAS; see Appendix B), one of six primary instruments commonly used to assess *dispositional mindfulness* (an individual's general state of mindfulness in everyday life). They completed this survey, chosen because compared to the other scales it "focus[es] [only] on attention and awareness without assessing acceptance" (Trousselard et al., 2010), in Weeks 3 and 11.

The results of the MAAS appear contrary to the expectations but, in light of other research (Schmertz, Anderson, & Robins, 2009; MacKillop & Anderson, 2007), indicate changes in dispositional mindfulness (DM) that might be meaningful in a more elaborate study. Over the course of the eight-week study, the scores of 39 percent of the class suggest an increase in DM of by 0.40 point on a 6-point scale (refer to Figure 15). The scores of the majority of students (58 percent), however, suggest a decrease in DM (refer to Figure 11) by an average of 0.52 point, a

reasonable change given the increased demands placed on students in Week 11 as compared to Week 3. Also possible is an increased sensitivity to mindlessness; students may have become more aware and self-critical of how mindless they are or can be. Interestingly, fewer scores were in the less-mindful range in Week 11 than in Week 3 (compare Figures 12 and 13), though only a few students were affected by this change. Because this study did not have a control group of non-meditators or incorporate statistical analysis, however, these seemingly minor changes cannot be interpreted.

Although the results of the MAAS were inconclusive, the short-answer surveys and reflective writing samples reveal gains in attentional capacity. Of all the comments students made in the surveys about the in-class mindfulness practice[2], heightened focus was mentioned more often than any other result; the next most common result was reduced stress, followed by the ability to think more clearly and effectively, which is analogous to enhanced cognition (refer to Figure 20). As explained in the review of literature, cognition and attention are deeply interconnected. The fact that students independently identified these two factors is interesting. Also interesting is the prevalence of these two factors among many, which suggests that the strong correlation between meditation, attentional control, and cognition found in the scientific literature may apply to writing studies as well.

It is worth mentioning, however, that although students described their experiences in their own ways, I inadvertently predisposed them to certain benefits prior to the study. In order to avoid resistance to the practice due to negative connotations of "meditation," I referred to the practice as a "focusing exercise" in the recruitment script I read to students and mentioned

[2] I did not count the references to particular benefits in the reflective essays, but they seemed to follow a similar trajectory.

"focus" three times in the consent form. In the surveys and prompts used in the study, however, I omitted the words "focus" and "attention" to avoid drawing their attention to particular aspects of their experience. Nevertheless, students may have remembered those words from the preliminary materials, thereby skewing the data.

Overall, though students may have been predisposed incidentally to expect changes in attention, their reflections contain uniquely worded and compelling insights and phrasings that are indicative of authentic experience. One student wrote, "My words feel more natural and flowing… Though I still struggle to comprehend where I am going in the big picture. My mind isn't losing track of the sentence in the midst of it." Another wrote, "I tend to have trouble clearing my mind and actually starting a writing assignment. Well any assignment for that matter. However, after performing the exercise I do find it easier to let my writing flow out of me." Some students mentioned benefits in comprehension, and a few alluded to the acceptance aspect of mindfulness as defined earlier; for example, one student wrote:

> Today's practice…seems to have made me generally more "sponge-like" in absorbing of information. Generally, I will have to read the prompt several times in order to really "grasp" the information it is asking for. This expeirence has also made me feel as if i am more aware of everything around me, yet I am not bothered by it. At times, when doing "pre-writing" in class…I feel as if I am bothered by the "ticking sounds" generated by other peoples keyboards, and this can greatly effect my concentration; although, today I am aware of this noise yet it is not distracting while adressing the prompt.

Some students also used metaphors to vividly describe their experience of enhanced focus and mental calmness, as in the following excerpt from one student's reflection:

> Today's exercise was very calming. I felt as though I was in a deserted parking lot at night; no cars, no people, not even any stores, just me and a few street lamps and walls. I translate this as letting go of everything else that I'm doing today or am stressing over and am just focusing on myself. When I was free from distractions, so-to-speak, it became a much more relaxed environment inside my mind and I was free to explore exactly what I wanted to, i.e. the breath, this class, my writing.

This particular excerpt also reflects a greater sense of agency, consistent with the findings of Herman (2008) and indicative of enhanced metacognition (discussed in the next section).

Those students who mentioned no change in focus tended to have less to say about their experience in this regard, mentioning only that they could not stop their thoughts, which often resulted in frustration. This inability to stop the thoughts—and in many cases, this ensuing frustration—was the experience of all but one of the students who claimed to have ADD or ADHD, as well as all the students who found the practice not at all helpful (refer to Figure 19). Some students said they experienced greater focus early in the study, but as they became bored with it as the result of the repetition throughout the semester, they became less able to focus.

Due to various constraints, I did not review the evaluative essays in depth, though they may have revealed changes in focus evidenced by decreases in the irrelevant and/or redundant ideas or statements that are common to novice writing. The writing samples collected may provide valuable data for future study to this end. I did, however, quickly review the evaluative samples and noticed one conspicuous and recurring feature: In only the Week 7 evaluative essay, the second of the four timed evaluations that students wrote, several students used the phrase "rhetorical situation," which was also used in the prompt (see Appendix C; students used this same prompt for each timed evaluative essay they wrote). They did not use this phrase in their evaluative essays before or after this date, though, which suggests that either they became more attentive to the language of the prompt or I inadvertently mentioned that phrase while summarizing their task just prior to their writing. I suspect the latter is the case, though I cannot know for sure because I did not record our class sessions. However, even if I did mention that phrase, students were clearly attentive to what I said, a condition that any instructor knows is

difficult to elicit. This coincidence may suggest that students were paying more attention to the task demands on this day than on others; why a continuation of this attentiveness to particular phrasings was not immediately apparent, however, is unclear.

Collectively, anecdotal evidence indicates that some students did experience improvements in focus, though the results of the MAAS indicate that these improvements were not strong enough to measure with this scale. (This conclusion is consistent with MacKillop and Anderson, 2007, who found no significant difference in the MAAS scores of novice meditators and those of non-meditators.) Another possibility is that changes occurred but did not transfer beyond the task immediately following the meditation practice. One possible explanation for a lack of transfer is that brief interventions like that of this study do not create deep change that extends beyond the context in which they occur; another possible explanation is that because most students did not practice the meditation outside of class (refer to Figure 22), they either did not experience or did not perceive changes in their dispositional mindfulness.

The realm of attention is worth investigating further, however, as distractedness is increasingly characteristic of this digital era, and distraction when writing is prohibitive to the creation of a quality product. Unlike other communicative tasks, explain Bruning, Dempsey, Kauffman, McKim, and Zumbrunn (2013),

> writing requires coordination and integration of numerous subskills, and the typically slow course of writing development reflects writers' need to proceduralize knowledge at multiple cognitive, metacognitive, and linguistic levels (e.g., Bereiter & Scardamalia, 1987; Kellogg, 2008; McCutchen et al., 2008). For novice writers, for example, the activity of writing—whether retrieving words from long-term memory or expressing ideas within appropriate syntactic frames—requires conscious attention to virtually all levels of the composition process. (p. 30).

Additionally, students likely do not learn from the writing process when they are not attentive to it, as education research shows that attention is an important learning skill (Shapiro et al., 2011).

Because findings of neuroscience and psychology research consistently demonstrate beneficial effects of mindfulness meditation on attentional control, the practice appears to be valuable despite the negative experiences some of the students had with it.

Insights gained from this study indicate that the integration of the practice into the classroom needs some tweaking in order to have more impact on student writing processes. As discussed in more depth in "Implications and Recommendations," teachers will need to: 1) change the amount of practice and/or vary the type of practice; 2) provide more explicit information about the practice(s) upfront, explaining common experiences and challenges and means of coping with challenges; and 3) reminding students occasionally about the purpose of the practice(s), encouraging them to persist through challenges by practicing patience. Such changes might help those who struggle with boredom, with tiredness despite ample sleep (within the meditation community, tiredness is viewed as a mental distraction), and/or with attentional or anxiety disorders. They may also facilitate a more positive experience for those who perceived no benefits because they failed to achieve desired results.

Metacognition/Insight

The source of material for the analysis of metacognition, students' reflective essays yielded the richest data of the study; responses to the short-answer surveys were sometimes inappropriate or inconsistent[3], whereas most of these reflective samples were not (perhaps because they did not require students to reflect beyond the last five minutes). Most compelling in these samples (and of all the data collected) are the insights that some students reported having

[3] For example, some students understood "stress response" to mean the presence or absence of stress, and some claimed that writing-related stress was not a common experience for them despite previous allusions to this stress as familiar.

gained about their minds, particularly their ability to regulate thoughts and, in turn, alter their experiences (refer to Table 6). By the last reflection, written in Week 10, one student who had struggled with focusing after relaxing during meditation wrote about her particularly difficult meditation practice that day, "it was difficult at some points to fight the urge to move, but focusing just on the breath made it more tolerable. Instead of moving, like I usually would, I would think of my breathing and resist the urge to get distracted." She then connected this experience to her experience of feeling overly relaxed afterward, and she realized that she could bring herself to focus even while relaxed. Another student, who had been practicing mindfulness meditation for a few months prior to coming to class, demonstrated especially keen insights about his general disposition in the classroom as well as his experience while writing. In his Week 6 reflection, the student applied the mindfulness to his writing process:

> Looking at this prompt, the things I notice I'm struggling with address the complexity of each request the prompt makes and focus on a response to each request.... I'm noticing now how the rest of the prompt gives me a feeling of intimidation. I'm asked to give quality that will be measured with many different parameters and my mind begins to race trying to think of ways to accomplish this in fifteen minutes and worrying that I won't be able to achieve it. The worry comes from my previous knowledge that it takes me awhile to generate ideas and refine them with thinking until I'm ready to put write them down. Other times, like now, I try and compensate by writing down whatever I can. And sometimes the thought of producing something of high quality to will arrest my train of thought. I may begin to scrutinize what I've written, sometimes I'll despair that I can't live up to the task. Although, I don't really know what standards I'm trying to live up to. The perfect piece of writing is impossible but it seems like that's what I'm trying to hold myself too. The more I think about it, the sillier it seems to be worrying, and the worrying is only preventing the writing from happening. I feel better the more I write and less trapped by the empty page.

This reflection indicates extraordinary metacognition that leads to a shift in perspective and approach to task demands; the last sentence indicates a willingness to cast aside worry and write, as doing what intimidates him, he realizes, paradoxically relieves the perceived threat.

The depth of insight demonstrated in this reflection is certainly not characteristic of novices, but it indicates the general direction in which practitioners head. Admittedly, these insights do not necessarily lead to behavioral changes—this particular student dropped out of the university as the result of the inability to cope with its demands[4]—but this attentiveness and insight comprise a necessary foundation for behavior modification and demonstrate the sensitivity and maturity required of a successful student and an adept critical thinker and writer (Boscolo & Hidi, 2007; Magnifico, 2010). Although this student's meditation practice cannot be fully credited for these effects, the effects are indeed consistent with the experiences and insights commonly demonstrated by adept meditators and are consistent with the findings of researchers like Moore et al. (2012), in which participants noted positive effects on their work performance, and Rohman (1965), whose students reported the experience of insight.

Despite the relatively few students who demonstrated growth in metacognitive abilities, the strong association between metacognitive growth and the employment of productive coping mechanisms in the face of challenges suggests that mindfulness practice is a valuable addition to the composition classroom, though some changes to the practice described in this study are needed (see "Implications and Recommendations"). Such findings are important, as the research of Bruning et al. (2013) indicates that an individual's ability to manage his thoughts has a stronger bearing on his attitude toward writing than his writing aptitude does. Attitude, of course, is strongly correlated to motivation, one of the major concerns this study aimed to address.

[4] This circumstance may suggest that students who are most aware of themselves may be paralyzed by that awareness.

Anxiety/Apprehension

To gather information about and test students' writing apprehension, I had them fill out the Daly Miller Test (DMT) survey of writing apprehension (see Appendix B) during the first and last weeks of the study. I also deliberately created a minor apprehension-inducing situation in which students were given a writing task, a limit of 15 minutes to complete that task, and the clarification that their writing would be graded based on quality (referring specifically to "sentence clarity, depth of content, and organization of and connections between ideas," as shown in the prompts in Appendix C). This task immediately followed the mindfulness meditation practice each Monday for eight consecutive weeks. As Powers, Cook, and Meyer (1979) found that "compulsory writing causes writing apprehension" (as cited in Smith, 1984), it stands to reason that students' levels of apprehension may have been affected by this task with its additional constraints and demands beyond just compulsory writing. As a result, some students, knowing that the writing task was forthcoming, may have negatively associated the task-related stress with the meditation practice. One student did mention this difficulty, though I did not collect sample-wide data to address this possible negative association.

Results of the DMT show that by the end of the study, students were more apprehensive about writing than they were at the beginning of the study (refer to Figure 1). This change, however, is not necessarily a negative result. At the beginning of the study, participants were generally more *confident* than apprehensive about their writing, as shown in Figure 5 (where blue lines above the *x*-axis demonstrate scores above the mean in Week 3, and blue lines below the *x*-axis demonstrate scores below the mean; scores above the mean reflect less apprehension). Figure 5 also shows that for just over half of the study sample (also shown in Figure 6), the

change in scores over time indicates a move toward the DMT mean, which Stoner (n.d.) says indicates the healthiest level of apprehension. Smith (1984) explains, "*some* apprehension is necessary if the writer is to take the care that produces an acceptable product" (p. 5), a notion with which writing instructors would generally agree. Therefore, although apprehension increased throughout the sample more than it decreased, the apprehension of just over half of the class moved closer to the ideal.

Move Toward the DMT Mean with Increased Apprehension

A closer look at the results, however, shows that most of the moves *toward* the mean (the ideal)—13 students, specifically—were the result of decreased scores, or a *growth* in apprehension (see Figure 7). Only four students moved closer to the mean by becoming less apprehensive. Of those students whose scores moved *away* from the mean, eight students became even less apprehensive, and eight became more apprehensive (refer to Figure 8); these latter eight students demonstrated increased writing apprehension that negatively affected them.

Detrimental Increases in Writing Apprehension

Because research connects mindfulness meditation to the reduction of anxiety, the detrimental increases in writing apprehension are particularly intriguing. Two of the four students with the greatest increases in apprehension had Week 3 scores that reflected healthy levels of apprehension (7 points and 5 points above the mean). The other two students in the top four for change had Week 3 scores below the mean, but not far, indicating slight apprehension to begin with. Both of these latter two students, however, said they do not experience stress when writing.

Interestingly, the student with the greatest change in score, a drop of 28 points (from 5 points above to 23 points below the mean) was one of the more enthusiastic supporters of the meditation practice and did not mention an attention or anxiety disorder. Her reflections demonstrate some keen insights, and she claimed the ability to focus in class like never before. In this case, perhaps the discrepancy between the self-report apprehension score and the reflective comments is similar to the trend evidenced by writers practicing new skills, whose writing quality often greatly diminishes in the early stages of implementing the new skill. Other possibilities are that the student was not acutely aware of her apprehension, was experiencing excessive pressures at school when she took the DMT in Week 11, or was writing her reflections to garner favor from the instructor. Because I was unaware of this paradox when I conducted the interviews, I did not select this student for an interview, so these questions remain unanswered but could provide foundations for future investigation.

Also perplexing is the comparison of the short-answer surveys and reflections to the DMT scores of the three students with the next greatest increases in apprehension (drops of 20, 16, and 16 points). The student whose score dropped 20 points, from 4 below to 24 below the mean, said he does not experience stress when faced with a writing assignment, though his DMT scores suggest otherwise. He found the meditation practice not at all helpful. One of the students whose score dropped 16 points, from 7 below to 23 below the mean, also said he does not experience stress when faced with a writing assignment, though his scores also suggest otherwise. He, however, found the practice somewhat helpful, claiming that it helped "clear [his] head" so he could "more clearly organize [his] thoughts."

Of the eight students who experienced these detrimental increases in apprehension, two said they have ADHD. The other student with a 16-point increase in apprehension was one of these students. She began, however, with the highest Week 3 score, 7 points above the mean. The other student in this group who claimed to have ADHD experienced the smallest increase in apprehension (5 points), though his Week 3 score (27 points below the mean) revealed high writing apprehension to begin with. Both students claimed that the practice was unhelpful because they were unable to stop their thoughts; most likely, the mindfulness practice made them more aware of the ADHD, which increased their apprehension.

Because the research indicates that mindfulness meditation is positively correlated to self-regulation in persons with ADHD and anxiety disorders (Schoenberg et al., 2014; Smalley et al., 2009; Zylowska, Smalley, & Schwartz, 2009; Tang et al., 2007), the mixed results of this study may indicate that students need more guidance and encouragement in practicing meditation, perhaps through a scaffolded approach that leads them through practices of visualization and non-judgmental awareness before progressing to the more rigorous practice of concentrative mindfulness meditation. This is the approach described by Moffett (1982), who recommends that teachers start with visualization in order to "develop selfhood, control, and perception"; then move to the "distant observer" method of mindfulness, where the individual simply notices thoughts; and then work on concentration—as in the mindful breathing practice—to "develop increasing control of inner speech" (p. 236). Such an approach might better ease students into the practice, enabling them to settle down and become acutely aware of their minds before attempting to control them, and to cultivate patience with themselves as they progress in the practice.

The students whose scores demonstrate detrimental increases in writing apprehension—despite claims that writing-related stress was uncommon or nonexistent for them—may have become more anxious as a result of feeling frustrated by the compulsory meditation practice. Another possible cause of the discrepancy could have been the pressures of exams and other class demands these students were likely facing in Week 11 of the 16-week semester. Still another possibility is that students were intentionally dissociating themselves from a trait they do, to some degree, exhibit; to demonstrate apprehension while claiming a lack of that apprehension may indicate that the individual *is* experiencing it but perceives it as conditional, that he does not consider it a part of who he is. "I am not a person who experiences writing apprehension," someone might say, all the while feeling that apprehension is a temporal experience that does not define him. Such a belief might also produce resistance to meditation practice or other practices that challenge students' self-conceptions. Perhaps more in-depth reflection and one-on-one interviews with these students would have elicited insights regarding this discrepancy, but these students did not consent to participate in an interview at the beginning of the study.

CONCLUSION

Limitations of This Study

Although I triangulated this qualitative study to enhance the strength of the results, certain factors outside my control inhibited the data collection and analysis. Due to overlapping constraints in human subjects research and time for planning the study, I did not use a control group. Instead, I used grounded theory (Glaser & Strauss, 1967) to identify patterns and traits that merit further investigation in more elaborate research, and I compared these patterns and traits to the existing literature across a few disciplines (neuroscience, psychology, and writing studies).

This study took place in the classroom in the center of the University Writing Center on campus; the classroom and tutoring area are separated by window-lined walls, and though I routinely closed the blinds in the classroom before class began, the location of the room and the resulting outside noise at times may have inhibited students' meditation practice, as novices tend to experience exceptional difficulty in disregarding distractions. Other distractions occurred within the classroom itself; although I instructed late-coming students to wait outside until the practice was done, this habit took a few weeks to settle in, and mindfulness practices early in the study were interrupted by a few latecomers. On Mondays, I allowed late students to enter the classroom between the meditation and the timed writing session, and though they were unobtrusive, their entrances may have distracted students who had just finished meditating. Also inhibitive to students' practice was the fact that it was communal; the restlessness or cough of a

classmate could and did make meditating prohibitively difficult for some students, as evidenced by their reflections. In analyzing the data, I based conclusions upon seeming significance; I did not run statistical analyses of the data. Future iterations of this study, however, will include these analyses.

Implications and Recommendations

Although some of the findings of this study did not facilitate interpretation and some seem counterproductive at first glance, a consideration of the results of *correct* practice reveals consistency with the scientific findings discussed in the review of literature. Those findings indicate that mindfulness meditation—even brief interventions—could play a valuable role in enhancing attentional control, reducing apprehension, and facilitating the development of metacognitive skills and agency crucial to good writing. How to best integrate mindfulness practice into the classroom, however, is less clear. Because some students in this study negatively responded to the practice, writing in their reflections that it was a "waste of time," instructors might prefer to offer sporadic workshops on mindfulness practices in lieu of having a routine practice, or they might prefer to make the practice optional (Herman, 2008).

However, because students who committed to the practice demonstrated benefits that some of them simply did not recognize they had demonstrated, and because so much empirical research supports the value of mindfulness practice in complex tasks like writing and in high-pressure, easily distracting settings like academia, I favor the routine integration of a modified version of the practice used in this study. In the first few weeks, several students' reflections expressed gratefulness for the regularity of the practice; they appreciated the routine and the knowledge that they would get a chance to settle into class before having to work. Only after the

practice began to bore students did they express dissatisfaction with the repetition. These findings recommend a more varied approach like the one Moffett (1982) suggests: a scaffolded approach beginning with visualization methods of meditation, progressing to a non-judgmental awareness method, and culminating in concentrative mindfulness meditation. Moffett's article is particularly helpful in its descriptions of the types of practice; another valuable resource offering extensive guidance on practicing mindfulness meditation is Gunaratana (2011).

Another means of making the practice meaningful for students—some of whom may not notice benefits—might be to explain, before introducing the practice, 1) the purpose of the practice (to train the mind), 2) the variety of benefits applicable to academic life that scientific research consistently associates with the practice, 3) common experiences and challenges that people face when practicing, and 4) instructions on how to cope with challenges. As the practice progresses, students may benefit from occasional reminders about the purpose of the practice(s) and encouragement to persist through challenges (like tiredness, frustration, irritation, and so on) by practicing patience, knowing that the training is valuable even when it does not seem to produce immediate results. Patience with the process of learning and developing skills is an integral part of getting the most out of higher education, and this practice has the potential to teach this valuable skill to students early in their college careers.

The findings of this study also revealed that students commonly confused the acts of meditation, relaxation, and reflection. In order to realize the benefits of meditation, however, students must practice it correctly, not using it as a time to reflect, to plan, or to mentally disengage. Rather, mindfulness meditation practice entails heightened attention and diligent effort, and results of this study indicate that students would benefit from a gentle reminder in this

regard as well as encouragement to try it out outside of class. Reminders should be infrequent and sensitive, however, as many students, particularly those with excessively active minds, also demonstrated apprehension about whether they were doing the practice correctly.

One other recommendation regards the language with which the practice is discussed. Because the lack of reception of meditation in academia may be the result of the practice's spiritual roots and connotations, instructors and researchers should consider introducing and teaching it with concrete rather than abstract terms. Campbell (1994) makes a similar speculation when she writes, "Perhaps the continued exclusion of meditation as a classroom practice is based in part on a distrust of the idea of a 'deep' self so often sought by the meditating spiritual seeker" (p. 249). The poor reception of this pedagogy, therefore, may be indicative not of a poor idea, but of poor rhetoric in this emergent field. Proponents of meditation pedagogy may be trying too hard to use Eastern vernacular and philosophy in communicating with a Western audience. Wenger (2012), for example, writes, "Ryan called up energy through his breath, channeling *prana* to give him the excitement, endurance and ideas he needed for writing" (p. 31). Because such explanations often have little to no credence with a Western audience, proponents of meditation may need to take a more practical approach that focuses primarily on the scientific literature as its theoretical and terminological foundation while explaining the relevance of meditation to the writing process and pedagogy.

Suggestions for Future Research

Emerging evidence on the neurophysiological and cognitive benefits of mindfulness meditation, in conjunction with decades of research on the psychological benefits, provides an excellent foundation for research that investigates the effects of classroom-based meditation on

both the cognitive and sociocultural dimensions of writing, a collaboration recommended by Magnifico (2010). Such research might explore the writing process more deeply by soliciting reflective writing after in-class evaluative essays and by asking more explicit socioculturally oriented questions for students to address in the reflections. Also compelling, but perhaps outside the realm of traditional writing studies, would be a hybrid neuroscientific study examining the neural pathways of novice meditators while doing compulsory writing.

Results from this study suggest that research examining the potential effects of meditation on the organization of written composition could be fruitful, as several students mentioned the ability to organize their thoughts more easily and coherently as an immediate result of the practice. The current study could also provide the basis for a revised effort following the suggested alterations discussed in the "Implications and Recommendations" section. Regardless of the focus of study, however, researchers should use a control group to clarify and validate the results, as research on meditation and academic writing has yet to do so.

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APPENDIX A

MINDFULNESS PRACTICE SCRIPT

The following practice is borrowed from Stahl and Goldstein (2010, p. 45), except for the last part, which is of the researcher's own devising:

"Take a few moments to be still. […]

"Bring your awareness to your breath wherever you feel it most prominently in your body. It may be at the nose, neck, chest, belly, or somewhere else. As you breathe in normally and naturally, be aware of breathing in, and as you breathe out, be aware of breathing out. Simply maintain this awareness of the breath, breathing in and breathing out.

"There is no need to visualize, count, or figure out the breath; just be mindful of breathing in and out. Without judgment, just watch the breath ebb and flow like waves in the sea. There's no place to go and nothing else to do, just be in the here and now, noticing the breath—just living life one inhalation and one exhalation at a time.

"As you breathe in and out, be mindful of the breath rising on the inhalation and falling on the exhalation. Just riding the waves of the breath, moment by moment, breathing in and breathing out.

"From time to time, attention may wander from the breath. When you notice this, simply acknowledge where you went and then gently bring your attention back to the breath.

"Breathing normally and naturally, without manipulating the breath in any way, just be aware of the breath as it comes and goes."

When you're ready, gently bring the attention back to the body, to the fingers and the hands, to the toes and the feet, to the places where your body makes contact with the chair and with itself. Maintaining this sense of inner awareness, gently open your eyes.

APPENDIX B

SURVEYS

The Daly-Miller Test[5]

Name: _____Age: _____

Select the response from 1 to 5 that best suits your feelings about the following statements.

Remember: There are no correct answers; please give your honest response to each item.

1	2	3	4	5
Strongly Agree (SA)	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree (SDA)**

	SA				SDA
1. I avoid writing.	1	2	3	4	5
2. I have no fear of my writing's being evaluated.	1	2	3	4	5
3. I look forward to writing down my ideas.	1	2	3	4	5
4. I am afraid of writing essays when I know they will be evaluated.	1	2	3	4	5
5. Taking a composition course is a very frightening experience.	1	2	3	4	5
6. Handing in a composition makes me feel good.	1	2	3	4	5
7. My mind seems to go blank when I start to work on my composition.	1	2	3	4	5
8. Expressing ideas through writing seems to be a waste of time.	1	2	3	4	5
9. I would enjoy submitting my writing to magazines for evaluation and publication.	1	2	3	4	5
10. I like to write down my ideas.	1	2	3	4	5
11. I feel confident in my ability to express my ideas clearly in writing.	1	2	3	4	5
12. I like to have my friends read what I have written.	1	2	3	4	5
13. I'm nervous about writing.	1	2	3	4	5
14. People seem to enjoy what I write.	1	2	3	4	5
15. I enjoy writing.	1	2	3	4	5
16. I never seem to be able to write down my ideas clearly.	1	2	3	4	5
17. Writing is a lot of fun.	1	2	3	4	5

[5] Daly, J. A., & Miller, M. D. (1975). The empirical development of an instrument to measure writing apprehension. *Research in the Teaching of English, 9*(3), 242-249.

18. I expect to do poorly in composition classes even before I enter them.	1 2 3 4 5
19. I like seeing my thoughts on paper.	1 2 3 4 5
20. Discussing my writing with others is enjoyable.	1 2 3 4 5
21. I have a terrible time organizing my ideas in a composition course.	1 2 3 4 5
22. When I hand in a composition, I know I'm going to do poorly.	1 2 3 4 5
23. It's easy for me to write good compositions.	1 2 3 4 5
24. I don't think I write as well as most other people.	1 2 3 4 5
25. I don't like my compositions to be evaluated.	1 2 3 4 5
26. I'm not good at writing.	1 2 3 4 5

Mindful Attention Awareness Scale[6]

Name: _____Age: _____

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

1	2	3	4	5	6
Almost Always (AA)	**Very Frequently**	**Somewhat Frequently**	**Somewhat Infrequently**	**Very Infrequently**	**Almost Never (AN)**

	AA **AN**
I could be experiencing some emotion and not be conscious of it until some time later.	1 2 3 4 5 6
I break or spill things because of carelessness, not paying attention, or thinking of something else.	1 2 3 4 5 6
I find it difficult to stay focused on what's happening in the present.	1 2 3 4 5 6
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	1 2 3 4 5 6
I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	1 2 3 4 5 6
I forget a person's name almost as soon as I've been told it for the first time.	1 2 3 4 5 6
It seems I am "running on automatic," without much awareness of what I'm doing.	1 2 3 4 5 6
I rush through activities without being really attentive to them.	1 2 3 4 5 6
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	1 2 3 4 5 6

[6] Brown, K.W. & Ryan, R.M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84,* 822-848.

I do jobs or tasks automatically, without being aware of what I'm doing.	1 2 3 4 5 6
I find myself listening to someone with one ear, doing something else at the same time.	1 2 3 4 5 6
I drive places on "automatic pilot" and then wonder why I went there.	1 2 3 4 5 6
I find myself preoccupied with the future or the past.	1 2 3 4 5 6
I find myself doing things without paying attention.	1 2 3 4 5 6
I snack without being aware that I'm eating.	1 2 3 4 5 6

Week 3 Survey[7]

Name: _____Age: _____

Instructions: Please answer the following questions to the best of your ability. Remember that there are no correct answers; please be as honest and detailed as possible in your response.

1. How do you usually respond to stress when faced with a difficult writing assignment? (If you never feel stressed, simply say so.)

2. Have you ever practiced any form of meditation?

   *If you answered **yes** to the preceding question, please respond to questions a through f as specifically as possible:*

   a. What kind of meditation did you practice? What did you do during this meditation? Was it guided by someone else, or not?

   b. Approximately how many times did you practice?

   c. How often did you practice?

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d. Why did you practice?

e. How did you learn about and/or how to meditate?

f. How helpful did you find the practice of meditation? (Circle one.)

    a. Not at all helpful
    b. Somewhat helpful
    c. Very helpful

    If you found the practice at all helpful, **in what ways** did it help you? Please explain as specifically as possible.

3. I believe that regular mindfulness practice may help to bring about academic improvement. (Circle the response that you feel best describes your belief.)

    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agree

    Below, please explain the **reasons** for your chosen response.

Week 7 Survey[8]

Name: _____Age: _____

Instructions: Please answer the following questions to the best of your ability. Remember that there are no correct answers; please be as honest and detailed as possible in your response.

1. How helpful do you find our in-class mindfulness practice? (Please circle one.)

    a. Not at all helpful
    b. Somewhat helpful
    c. Very helpful

    If you find our practice at all helpful, in what ways do you feel it's helping you? Please explain as specifically as possible and **clarify whether it is helping you in this class, outside this class, or both.**

2. I believe that regular mindfulness practice may help to bring about academic improvement. (Please circle the response that you feel best describes your belief.)

    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agree

    Below, please explain the **reasons** for your chosen response.

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3. Have you used mindfulness practice outside this class?

   If you answered yes to the preceding question, please explain **when** you've used mindfulness practice outside this class, **why** you used it, and **whether and how it worked** for you.

4. Has your stress response to difficult writing assignments changed at all as a result of our in-class mindfulness practice? If so, what is different? (If you never experience stress when faced with a difficult writing assignment, please simply say so.)

5. Would you recommend mindfulness practice to other students who are struggling with a writing assignment? Please explain the **reasons** for your chosen response.

Week 11 Survey[9]

Name: _____Age: _____

Instructions: Please answer the following questions to the best of your ability. Remember that there are no correct answers; please be as honest and detailed as possible in your response.

1. How helpful do you find our in-class mindfulness practice? (Please circle one.)

   d. Not at all helpful
   e. Somewhat helpful
   f. Very helpful

   If you find our practice at all helpful, in what ways do you feel it's helping you? Please explain as specifically as possible and **clarify whether it is helping you in this class, outside this class, or both.**

2. I believe that regular mindfulness practice may help to bring about academic improvement. (Please circle the response that you feel best describes your belief.)

   a. Strongly disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree

   Below, please explain the **reasons** for your chosen response.

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3. Have you used mindfulness practice outside this class?

   If you answered yes to the preceding question, please explain **when** you've used mindfulness practice outside this class, **why** you used it, and **whether and how it worked** for you.

4. Has your stress response to difficult writing assignments changed at all as a result of our in-class mindfulness practice? If so, what is different? (If you never experience stress when faced with a difficult writing assignment, please simply say so.)

5. Would you recommend mindfulness practice to other students who are struggling with a writing assignment? Please explain the **reasons** for your chosen response.

APPENDIX C

WRITING PROMPTS

Reflective Writing Prompt[10]

For this essay, your audience is twofold. You are writing a reflection on your experience for me, so I can learn more about what is and isn't helping you and what challenges you are facing as you attempt to calm your mind and write. You are also writing for yourself, to help you process your mindfulness experience and better integrate its effects into your writing habits. (Studies show that deep, thoughtful reflection helps us to grow exponentially as writers.)

For the next 15 minutes, write several paragraphs about the mindfulness practice you just finished. You will be graded not on your answers but on the *quality* of your response, which depends on sentence clarity, depth of content, and organization of and connections between ideas. Make sure your sentences say exactly what you mean, and expand your points with explanations that might help me to understand your experience and that might help you to revisit your experience later. Also, make sure your paragraphs are organized logically, with appropriate transition words and phrases to connect your ideas, and pay attention to grammar, spelling, and punctuation.

Here are some questions to guide you, but you are not limited to these points of reflection:

- Did you find today's practice easy or difficult? What about it was easy, or what about it was difficult? If it was difficult, why do you think it was so? How did you deal with any difficulties?
- How do you *feel* about today's practice? Please explain.
- Do you think the practice affected your ability to write this reflection? If so, how has it affected your writing ability in this moment?
- What can you learn from today's practice? How can you apply what you have learned?
- How might today's practice benefit you? (You are not limited here—just be honest and realistic about how you truly believe this practice might be of benefit to you, either in this class, outside this class, or both.)

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Evaluative Writing Prompt[11]

For this essay, I am your audience. I want to know what you think about the **effectiveness** of the piece you read for class today.

In several well-developed, well-organized paragraphs, do the following:

- **Explain** the *rhetorical situation* of the article or essay you read. That is, what is the author's purpose for the article or essay? What can you determine about his or her intended audience?
- **Evaluate** the effectiveness of the article or essay for its rhetorical situation. Address the following questions:
    - Does the article or essay include *appropriate* **evidence** for its claims? Is it missing evidence anywhere? If so, where, and why do you feel that evidence is needed? Be specific, and give examples.
    - Is the author's **tone** (word choice) appropriate for the intended audience? Be specific, and give examples.
    - Has the author **organized** his or her points logically? Do you find the progression of ideas difficult to follow at any place in the essay? If so, where and why? Be specific, and give examples.
    - Considering evidence, tone, and organization, do you think this article or essay, **overall**, successfully fulfills its purpose?

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APPENDIX D

INTERVIEW QUESTION BANK

1. You responded to Question # [state question number and survey name] with the following: [quote student response]. Can you tell me more about your response?

2. In your response to Question # [state question number and survey name], you wrote, [quote student response]. What did you mean by [insert text needing clarification]?

3. Would you like to share any personal anecdotes that support this response or demonstrate what you have said?

4. Do you think that the mindfulness practice helped you more in writing either the reflective essays or the evaluative essays? If so, why?

5. Did the mindfulness practice help you to think more clearly about the article used for the in-class evaluative essays? If so, how did it help you with these particular essays? [Additional open-ended questions to elicit more details may follow.]

6. Have you talked with anyone else about this practice (friends, family, instructors, etc.)? If so, what did you talk about? How did the conversation go? Did the person you were talking with many any comments or ask any questions? If so, what did he or she say or ask? How did you respond? Did this conversation cause any thoughts or questions to arise in your mind? If so, what were they, and how did you resolve them?

7. If student has tried our mindfulness practice outside of class (per responses to survey questions): Can you tell me about the time or times you've used our mindfulness practice outside of class?

8. Have you noticed anything about yourself (either pertaining to our class or not pertaining to our class), another, or anything else in the world since you've started this in-class mindfulness practice? That is, have you had any insights that you'd like to share? Can you tell me about them? [Questions to help interviewee expand or clarify as needed may follow.]

9. What in particular do you like or not like about the mindfulness practice?

10. Did you encounter any difficulties, frustrations, or negative emotions during or after the practice in class? If so, can you tell me about them? What did you do to handle them?

11. Will this practice be something you continue after this class is done?

12. Could this practice be applied to other classes and/or situations? If so, which classes (or does the particular class matter?) or situations?

13. If this practice didn't help you with writing, did it or might it help you to relax or focus for other classes?

14. If I used this mindfulness practice in future classes, would you recommend that I do anything differently? If so, what? (For example, would you prefer to have more guidance, more different techniques to choose from, etc. Or did you think this practice sufficed to meet your needs?)

15. If I conducted a similar study in the future, would you recommend that I change the current 15-minute writing assignment or the surveys in any way? If so, what do you recommend that I change, how would you like me to change them, and why?